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Publication date:
2011

No. 2011-010

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27 January 2011

ISSN 0924-7815

Measuring the Extent of European State Aid Control: An Econometric Analysis of the European Commission Decisions

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Abstract

This paper provides an analysis of the European Commission (EC) decisions on state aid control using data on 550 state aid cases approved by the EC between 1998 and 2009. More specifically, we measure the determinants of the duration of state aid, total budget of state aid and daily budget of state aid. By using these imperfect proxies, we try to identify the extent of European state aid control. Our results suggest that aid with multiple objectives to achieve has both longer durations and higher amounts of budget. We also find that for some aid objectives or industries, the EC approves cases of aid with both longer durations and higher levels of budget. On the other hand, for some class of aid objectives and industries, there is a trade-off between duration and the level of budget so as to counter-balance the undesired effects. The interpretation of the results imply that the European state aid control, which once was originally intended to address concerns about export subsidies and strategic trade, recently puts more emphasis on market failures mostly associated with externalities and public goods.

Key Words: European competition policy, state aid, survival analysis, quantile regression analysis
JEL code: L49, L59, K21

1. Introduction

Governments tend to give financial support to companies in numerous ways owing to their incentives to shift a larger share of rents to be earned in the market to their sides. Generally, this form of financial aid has the impact of distorting competition in the internal market. The purpose of European state aid control is to enable European member states to grant state aid to address real market failures while avoiding the distortions of competition that this type of state intervention might give rise to.

The objective of this paper is to provide an analysis of the European Commission (EC) decisions on state aid control. In doing so, we adopt a positive approach rather than a normative approach, explaining *what the state of affairs is* instead of *what the state of affairs ought to be*. We characterize the last decade of European state aid control policy in summary statistics and, detailed quantile regression and duration analysis on 550 state aid cases in total.

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♦ The authors would like to thank Prof. Leigh Hancher for her helpful suggestions.

This paper is not the first attempt to analyze the EC's decisions on antitrust issues. Previously, Carree et al. (2010) have provided a statistical analysis of all 538 formal Commission decisions under Articles 81, 82, and 86 of the European Community Treaty (cases of state aid excluded). Using a sample of 96 mergers notified to the European Commission and logit regression techniques, Bergman et al. (2005) analyze the Commission's merger decision process. On the other hand, Gual and Mas (2010) examine all of the European Commission's decisions on antitrust cases between January 1999 and February 2004 to check if the Commission's decisions are correlated to certain industry characteristics that are supposed to have impact on anti-competitive behavior by economic theory. In like manner, the utilization of duration analysis in the field of antitrust economics is not a new phenomenon. For instance, there are studies[1] that perform duration analysis by employing cartel duration as an imperfect proxy to gauge cartel performance.

In our paper, we consider three imperfect proxies to measure the impact of state aid: duration of state aid, total budget of state aid and daily budget of state aid. By using these imperfect proxies, we try to identify the extent of European state aid control. We are well aware of that both duration and budget information are clearly unsatisfactory in capturing the economic impact of state aid. It might be the case that state aid has continued to exist on paper for months with little impact on market structure. Alternatively, even though billions of Euros have been spent for the sake of aid, it might have little sustained effect on, say, facilitating economic activities in an industry. Ideally, we would like to compare the prices, number of firms, competition level, profits and so on that prevailed with what would have occurred absent the state aid. However, in order to perform this kind of rigorous counterfactual analysis we need very detailed and specific information for cases of aid, which is clearly missing in the current set up.

Our results suggest that aid with multiple objectives to achieve has both longer durations and higher amounts of budget. Our findings also reveal that for some aid objectives or industries, the EC approves aid with both a long duration and a high budget. Among these objectives, there are environmental protection aid, which is thought to be in the sphere of negative externalities, and aid given for services of general economic interest (SGEI), which occupy a

[1] Eckbo (1976), Griffin (1989), Marquez (1994), Suslow (2005), Posner (1970), Dick (1996), Gallo et al. (2000), Jacquemin et al. (1981), and Levenstein and Suslow (2006)

specific position in the economies of the member states of EU. As to the industries, real estate activities sector draws special attention, as it is an example to the industries that can be characterized as being industries where public goods are not provided by the market up to an efficient level because it is not lucrative to do so. On the other hand, for some class of aid objectives and industries, there is a trade-off between duration and the level of budget so as to counter-balance the undesired effects. Aid given as a remedy for serious disturbance in the economy or aid given to the industries of public administration and defense; compulsory social security can be given as examples.

According to Heidhues and Nitsche (2006) it is obvious that EU state aid control has evolved over time. What once was originally intended to address concerns about export subsidies and strategic trade has now become Article 107 TFEU, which is the legal basis for state aid control in Europe. In the light of the findings above, the emphasis of state aid control is more on market failures mostly associated with externalities and public goods.

The remainder of this paper is organized as follows: The following section presents an extensive review of the literature examining incentives of governments to provide state aid together with the review of the literature on distortionary impact of state aid. In Section III, we explain the legal framework about state aid control in Europe and describe the data used in this study. In Section IV, we present the estimation strategy and introduce various specifications. In Section V, we report the estimation results. Finally, we discuss the findings and conclude in Section VI.

2. A Pure Economic Approach to European State Aid: An Overview

Even though limited interest was shown in the economic analysis of state aid by scholars, recently there has been vivacity in this “virgin” field of antitrust economics, which can be seen from the fact that one chapter has been devoted to European State Aid Control in the Handbook of Antitrust Economics. Yet, most of the analysis about the practice of European state aid control is model- and econometric analysis-free and could not go beyond suggesting some principles based on vague and immeasurable definitions. As witnessed by Martin and Valbonesi (2006), formal treatments are scanty. According to Spector (2006) this is partly due to the lack of interest for this field in the United States, where there is no control for state aid. More fundamentally, an evaluation of state aid control from an economic perspective does not

include well-defined research questions, but instead an immense array of various fields of economics.

As pointed out by Friederiszick et al. (2006), the economics of state aid is connected to various areas of economics: first, to public economics, as state aid is an interventionist activity by the governments and is financed by taxes; second, to the economics of competition, since state aid provides assistance to some companies and, therefore, has the potential impact to distort competition; and third, to international trade theory, as state aid may alter trading conditions. Indeed, most of the previous literature on the potential impact of state aid has centered more on competition between member countries to grant state aid instead of considering the competitive effects of state aid within an integrated market. Beginning with Collie (2000), this strand of the literature asked the question of whether the prohibition of state aid increases overall welfare.

Ignoring non-economic or political expositions for state aid such as the inclination of governments to assist non-competitive and inefficient domestic firms and to support employment in specific sectors for political interests, Collie (2000) presents a partial equilibrium analysis of the welfare effects of production subsidies -which are proxies for state aid- in a homogenous good Cournot oligopolistic industry located within a single integrated market. His model can be seen as a two-stage game where at the first stage the national governments set production subsidies to maximize their national welfare and firms compete in a Cournot oligopoly at the second stage. Collie's models main finding is that the multilateral prohibition of subsidies would raise welfare of all countries hence providing a rationale for a general ban of state aid. However, two possible sources of deficiencies emerge in his model. Firstly, considering product differentiation instead of homogenous goods case, one might conjecture that product differentiation would reduce the impact that one jurisdiction's subsidy will have on the firms located in other jurisdictions. In other words, when products are adequately differentiated, the rationale for the multilateral ban or control on subsidies may be tapered. Secondly, switching from Cournot oligopoly to Bertrand oligopoly might change the results considerably. Taking these issues into consideration, Collie (2002) presents a symmetric model with identical firms where they produce differentiated products and market structure is either Cournot or Bertrand oligopoly. A production subsidy was used as a proxy for state aid as in Collie (2000). His main results indicate that under both Cournot and Bertrand oligopoly, if the products are adequately close substitutes then there is a range of

values where the Nash equilibrium subsidy is positive and where the multilateral prohibition of subsidies will raise the welfare of all countries. On the other hand, if the products are differentiated enough then there is a range of values where the Nash equilibrium subsidy is positive and where the multilateral prohibition of subsidies will reduce the welfare of all countries under both Cournot and Bertrand oligopoly. Assuming Bertrand oligopoly instead of Cournot oligopoly does not change the results in a considerable way.

Even though these two articles give a flavor as to why member states tend to give state aid and why the European Commission (EC) would prohibit them, they have been subject to criticism based on the fact that production subsidies –which are proxies for state aid in these articles- are not allowed under EC state aid control policy, and that state aid for investment and research and development (R&D) are more germane to the prevailing policy. Based on these critiques, Collie (2005) augmented the analysis in Collie (2000, 2002) by including the investment or R&D decisions of firms, and adding subsidies to investment or R&D given by the member states. In order to model R&D, he considered a non-strategic case in which firms set output and R&D simultaneously, whereas he thought of a strategic case so as to model investment where firms set investment given subsidies, and then firms set output given investment decisions. Under this set up, he showed that when there are no spillovers, the prohibition of state aid to investment will raise welfare. In a similar vein, welfare will increase if state aid to R&D is prohibited when spillovers are low. On the other hand, when the spillovers to R&D are at a moderate level, whether the ban on state aid to R&D will raise or reduce welfare hinges on the opportunity cost of government revenue. Finally, the prohibition of state aid will always decrease welfare when the spillovers from R&D are large enough.

As opposed to this general literature on subsidies, which are built upon models that are akin to models in the strategic trade, tax competition and rent-seeking literature, Martin and Valbonesi (2006, 2008) focus on the idea that the incentive to provide state aid is endogenously determined by the process of market integration. That is, they consider the idea that the process of market integration itself creates pressure for granting state aid, since market integration may result in exit by firms absent state aid. Apart from political arguments, they come up with the explanation that market integration activates an exit process by firms and consequently generates incentives for governments to subsidize their inefficient domestic firms at the expense of common market welfare.

One should bear in mind that the models considered so far examine incentives of governments to grant state aid and these models except Martin and Valbonesi (2006, 2008) are models of symmetric oligopoly. Different from these models that try to come up with pure economic explanations to the incentives of governments to give state aid, Møllgaard (2005) focuses on how state aid distorts competition by conferring competitive advantages to firms receiving them. A priori, the resulting equilibrium is asymmetric as long as state aid is existent. Another distinct feature of Møllgaard's model is that he models state aid as reducing the cost of capital to the firm rather than assuming that state aid decreases the recipient's marginal costs. In turn, state aid in the form of reduction in the cost of capital enables the recipient firm to invest more and the competitors to invest less in quality. Consequently, the recipient's price adjusted for the quality will be lower than the case that would materialize under a level playing field. In the extreme case where the aid is colossal, the demand-boosting investments in quality are of significant importance, and/or investments in cost reducing process innovation are substantial, then the non-recipient firm might be required to exit the market, which means that state aid may be predatory.

A more thorough analysis of the distortions of competition induced by state aid was performed by Garcia and Neven (2005). They consider three variants of state aid (state aid affecting marginal cost, subsidies affecting entry and subsidies affecting the degree of vertical product differentiation) and analyze whether specific market characteristics are robust indicators of the intensity of the distortions under these three different scenarios. The authors find that in all three scenarios, an increase in market concentration is conducive to an increase in price distortions that are borne by both domestic and foreign firms supporting the premise that state aid is more probable to abet distortions in concentrated markets. Furthermore, intense domestic rivalry proxied by low product differentiation or low margins is not a robust indicator of the intensity of distortions, since its impact hinges on the type of state aid, which suggests that the degree of rivalry should be evaluated carefully when measuring the magnitude of the distortion. Lastly, a greater degree of market segmentation in all three cases will protect the foreign firm from state intervention and raise the distortion experienced by domestic firms.

In addition to forms of state aid mentioned in the models above, other types of state aid relevant to the economics of competition are rescue and restructuring subsidies that are subject to strict regulation in the European Union. These rescue and restructuring subsidies

known as bailouts are granted not only on political grounds but also on economic grounds. For instance, if a firm in failing conditions is a monopolist in supplying nationwide services required for economic activities such as railways, then a bailout might be imminent to prevent a huge negative externality on the whole economy. Besides, if the bankruptcy of a firm in jeopardy leads to enormous job losses in a region with high rates of unemployment, a bailout may also be justified. A general formal treatment for rescue and restructuring subsidies is proposed by Glowicka (2008). She considers an asymmetric duopoly model (asymmetric in the sense that firms have asymmetric production costs) with two firms located in a different jurisdiction and selling in a common market. These firms restructure so as to decrease their unit production costs and then compete in a Cournot setting. Her results suggest that if cost asymmetry is not too large and the restructuring aid granting country is small enough, the subsidy saves the inefficient firm (which she calls successful rescue), increases the welfare of the intervening country by raising the profits of the aid recipient and reduces the surplus of all consumers in the integrated market. On the other hand, if the cost differential between firms is excessive, the subsidy is granted, yet it does not avert the subsidized firm from leaving the market (which she calls failed rescue).

In practice, the effectiveness of bailouts in Europe has been of a great concern, as only between 1992 and 2003, 79 firms going through difficulties were shored up with firm-specific aid of which total corresponds to billions of Euros (Glowicka, 2008, p. 21). In an attempt to measure the effectiveness of rescue and restructuring aid in Europe, Chindooroy et al. (2007) study the survival of companies having been granted rescue or restructuring aid in the EU between 1995 and 2003. Employing a one-period discrete choice model, they find that a high fraction of firms receiving rescue aid corresponding to about 50% were not able to survive. Besides, failure among restructuring aid recipients is less prevalent (about 20 %). A more comprehensive analysis regarding the effectiveness of rescue and restructuring aid was performed by Glowicka (2008). She analyzes rescue and restructuring aid conferred to 79 firms from 10 European countries between 1992 and 2003. More specifically, she estimates the hazard rates for all these rescue and restructuring aid recipients' survival. Her results indicate that in the first four years after the state aid, firms leave the market at an increasing rate, which suggests that the firms went bankrupt with a delay. 29% of the recipients exit anyway. She ascribes such high bankruptcy rates to possible deficiencies in the European Commission's decision-making process, as bailouts of firms with low probabilities for survival should have been acceded.

Apart from studies analyzing the effectiveness of rescue and restructuring aid, the only study measuring the effectiveness of state aid at a sector level was conducted by Friederiszick et al. (2003). Stated more precisely, Friederiszick et al. (2003) examine the effectiveness of state aid in boosting the efficiency of railways in the 15 EU countries by estimating a stochastic frontier production function for the incumbent monopolists during the period 1988-2000. Their results reveal a positive link between aid level and efficiency, while the results suggest that aid intensity has a negative impact on efficiency. Moreover, they also show that in member states with lower aid intensity, aid brings about more investment in comparison to countries with higher aid intensity.

To sum up, competition scrutiny of state aid is of crucial importance in order to distinguish good state aid from bad state aid. Nonetheless, the relevant economics literature has not grown up yet to provide economic principles to evaluate the potential impact of state aid on competition.

3. Institutions and Data

The Legal and Procedural Framework for State Aid Control in the EU

As can be seen from the literature focusing on competition between member countries to grant state aid and on competitive effects of state aid, state aid control is crucial to assure a level playing field for European firms and to prevent European governments from involving in lavish subsidy races for which the taxpayers would have to bear the expenses.

Article 107 (ex Article 87 of TEC) of the Treaty on the functioning of the European Union (TFEU) ("Treaty" hereafter) regulates the main principles concerning state aid. More specifically, Article 107(1) puts that state aid is, in essence, incompatible with the common market[2]. However, this incompatibility principle does not mean an absolute prohibition of state aid as such. Articles 107(2) TFEU and 107(3) TFEU of the Treaty stipulate several cases where state aid can be deemed permissible. Particularly, for the majority of approved state aid

[2] ''Save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, insofar as it affects trade between Member States, be incompatible with the common market."

cases, the most pertinent clauses are 107(3)(a)[3] and 107(3)(c)[4] of the Treaty. The European Commission ("Commission" hereafter) is given the authority to control these cases under Article 108[5] of the Treaty. State aid rules are only applicable to measures fulfilling the criteria outlined in Article 107(1) TFEU, which are:

- **Transfer of state resources:** State aid rules concern only measures engaging in a transfer of state resources (e.g., aid by national or local authorities). Nevertheless, it does not necessarily have to be the case that aid is granted by the State itself. It might also be given by a private or public intermediary delegated by the State.
- **Economic advantage:** The aid should provide an economic advantage to the recipient that would not have had under regular conditions.
- **Selectivity:** State aid must be selective and therefore it impacts the balance between recipient firms and their rivals.
- **Impact on competition and trade:** Aid must have the potential to affect competition and trade between Member States.

There are also the cases in which that even though a measure qualifies all the criteria listed above; it is not covered under the scope of Article 107(1) TFEU. These are small amounts of aid, which are called *de minimis* aid and are not supposed to have any impact on competition and trade.

There are also several competent bodies for the application of state aid rules for various sectors. For instance, for the aid granted in the sectors related to the production and marketing of agricultural and fisheries products, the state aid units of the DG Agriculture and Rural Development and the DG Maritime Affairs and Fisheries are responsible. For state aid to transport sectors, the state aid unit of DG Energy and Transport is the competent body. Likewise, DG Energy and Transport is also competent for the application of state aid rules to the coal sector. Finally, aside from the DG Agriculture and Rural Development, DG Maritime

[3] "aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment;"
[4] "aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest;"
[5] "The Commission shall, in cooperation with Member States, keep under constant review all systems of aid existing in those States. It shall propose to the latter any appropriate measures required by the progressive development or by the functioning of the common market."

Affairs and Fisheries and DG Energy and Transport, DG Competition is competent for aid measures in all remaining sectors.

The regulation of state aid rests on a system of ex ante authorization. According to this system, member countries have to notify the Commission of any plan to grant state aid and this aid is not put into effect before it has been approved by the Commission, which has the authority under Article 108 of the Treaty. States cannot grant any aid unless they have notified and have been allowed by the Commission. Any state aid, which is conferred absent the Commission consent, is accordingly put down as "unlawful aid".

Recently, the Commission has initiated a process of simplification of state aid procedures, which will make it quicker and easier to grant specific types of state aid. For this purpose, the Commission has adopted several block exemption regulations. But, in 2008, these regulations were replaced by a new General Block Exemption Regulations (GBER) that combines the existing framework and launches new sorts of measures to be exempted from the notification requirement. Consequently, member countries can grant aid that satisfies the requirements pronounced in the GBER without notifying the Commission beforehand.

Having described the legal framework, we explain the data used in our study and present summary statistics in the next section. For a more detailed description of the legal framework, one can refer to Vademecum on state aid rules.

Data Sources and Description of Variables

The relevant data for this study has been extracted from the competition cases database of the EC. Besides, for further details for each case, we have looked at the Official Journal of the European Communities. The sample of state aid cases considered in this study includes regional and sectoral aid together with the following horizontal aid schemes: training, innovation, employment, energy saving, rescuing firms in difficulty, research and development, SMEs (small- and medium size enterprises), restructuring firms in difficulty, environmental protection, services of general economic interest, remedy for a serious disturbance in the economy, and other aid. These state aid cases were approved by the EC over the period 1998-2009. Note that for these cases DG Competition was the competent body for the application of state aid rules. Therefore, state aid cases for which DG Agriculture and Rural Development, DG Maritime Affairs and Fisheries and DG Energy and Transport were

the competent bodies have been excluded from our analysis. In total, we have 550 observations.

For each state aid case we collected information on the following:

Dependent Variable 1: Duration of state aid cases

We have collected the beginning and end dates for each state aid case. None of these dates are censored. There are several reasons to focus on state aid duration. Firstly, duration is one of the most important ingredients of the so-called proportionality test, which ensures that the duration, intensity and scope of the aid must be proportional to the importance of the desired outcome. For instance, in cases where market failures -which are among the most noteworthy justifications for state aid approval-, are long-lasting, a longer duration of aid is required. Alternatively, some forms of state aid are considered to have a (more) distortive impact if aid is conferred over a longer period of time. Consequently, measuring duration of state aid will tell a lot about the extent of state aid control in Europe.

Dependent Variable 2: Total budget of state aid cases

The amount of total budget allocated for each state aid case has also been collected. These are in Euros and adjusted for inflation. The budget is also one of the most important ingredients of the so-called proportionality test mentioned above. For instance, in cases where market failures -which are among the most noteworthy justifications for state aid approval-, are chronicle, a higher amount of budget is required.

Dependent Variable 3: Daily budget of state aid cases

Finally, we have generated a variable by dividing the total budget by the duration of state aid cases. These are also in Euros and adjusted for inflation. This will tell us how “intense” an aid is.

Independent Variables:

Country dummies: These dummy variables indicate in which member state, aid was granted. In total, there are 27 country dummies, covering all EU-27 member states.

Primary objective of cases: These are dummy variables indicating the primary objectives of state aid cases. These primary objectives refer to regional and sectoral aid together with the horizontal aid schemes mentioned above.

Average real GDP change during state aid case: This variable is the average real GDP change during state aid case. The inclusion of this variable is due to the fact that state aid duration and budget is affected by macroeconomic conditions.

Industry dummies: These dummy variables show to which industry aid is conferred or in which industry aid recipient operates. This classification is made according to NACE Rev 2 level.

Year dummies: These are dummy variables showing in which year the state aid case was approved by the EC. We have included this in order to control for approval year fixed effects.

However, one should bear in mind that it might also be the case that an aid has multiple objectives (for instance, an aid might have both the objectives of energy saving and environmental protection) and/or that aid is given to several industries (for instance, an aid might be given to all industries in an underdeveloped region). In order to control for these, several dummy variables have been created. The definitions of these variables can be found in Table 1.

<INSERT TABLE 1 HERE>

Sample Statistics

Tables 2 and 3 provide summary statistics for all state aid cases in the sample, the former including the crisis measures and the latter excluding the crises measures (crises measures refer to aid given to as a remedy for a serious disturbance in an economy). The average duration of state aid in our sample is approximately 859 days, with a standard deviation of 654 days. Most of state aid cases in our sample consist of aid given in large economies. German state aid cases dominate the sample with 90 observations, followed by 72 Italian and 67 British cases of state aid. Apart from Malta (with 1 observation), Lithuania, France, and Luxembourg are the top 3 countries in terms of state aid duration. Furthermore; Luxembourg, Netherlands and Denmark are the countries where state aid has the highest level of total budget. As to daily state aid budget, the Netherlands and the U.K. rank top together with Luxembourg. On the other hand, when crisis measures are excluded, the top 3 member states for state aid duration do not change, while France, Ireland and Romania rank top for both daily and total state aid budget.

Furthermore, Table 4 demonstrates that manufacturing industries receive state aid for many times. According to the same table, the highest daily budget belongs to those cases of aid given to the industries of financial and insurance activities. Besides, aid given to the industries of accommodation and food service activities, of real estate activities, and of public administration and defense; compulsory social security has the longest mean duration, while aid given to the industry of financial and insurance activities has the shortest mean duration. On the other hand, the highest amount of both daily and total budget belongs to the aid conferred to the industry of financial and insurance activities. Finally, Table 5 shows mean daily budgets and durations for each state aid objective. According to the Table 5, remedy for serious disturbance aid has both the shortest mean duration and the highest mean total and daily budget.

Table 6 presents mean duration, daily and total budget of state aid cases by selected characteristics. According to the table, for those cases of aid given to a single industry, duration is longer and, total and daily budget is higher for aid with multiple objectives. Table 6 further indicates higher amounts of both daily and total budget for those cases of aid conferred to a single industry compared to cases of aid given to multiple industries.

<INSERT TABLE 2 HERE>

<INSERT TABLE 3 HERE>

<INSERT TABLE 4 HERE>

<INSERT TABLE 5 HERE>

<INSERT TABLE 6 HERE>

Preliminary Tests

Before proceeding with econometric evaluation, we have also performed log-rank and Wilcoxon (Breslow) tests for equality of survivor functions across several groups. These tests are global tests in the sense that they compare the overall survivor functions rather than testing the equality of the survivor functions at a specific time point. The null hypothesis of the tests may be stated in hazards, that is, $H_0 = h_1(t) = h_2(t)$. Table 7 presents the results of

these tests. In both tests, equalities of survivor functions are rejected for aid with single objective versus aid with multiple objectives. On the other hand, there is no statistical difference between the survivor functions of aid given to single industry and aid given to multiple industries.

One might also want to perform a stratified test in which the test is performed separately for different subgroups of the sample. Table 8 demonstrates the results of these stratified tests. The results show that even accounting for being an aid given to multiple industries, we still find a significant difference between the survivor functions of aid with single objective and aid with multiple objectives. Yet, accounting for being an aid having multiple objectives, we do not find a statistical difference between the survivor functions of aid given to single industry and aid given to multiple industries.

Having presented the descriptive statistics on European state aid cases and the results of preliminary tests, we now turn to the econometric analysis of the determinants of state aid duration and state aid budget.

<INSERT TABLE 7 HERE>

<INSERT TABLE 8 HERE>

4. Econometric Methodology

a. Determinants of State Aid Duration

Non-parametric Estimation

To help understand state aid duration, we first calculate Kaplan-Meier (1958) estimates of the survivor function , which is the probability of survival after time . In Figure I we plot the Kaplan-Meier estimate for the overall observations in our dataset. The estimated probability of survival decreases sharply in the first 1,095 days of a state aid's life. In Tables 9 and 10 we compare the estimated survivor functions of state aid based on various characteristics. These tables indicate that state aid with multiple objectives has a better survival experience than state aid with single objective. To be more precise, as can be seen from Table 9, the probability of surviving after 955 days is % 38 for state aid with single objective, while it is % 60 for state aid with multiple objectives. On the other hand, the probability of surviving after

955 days is % 42 for state aid given to a single industry, while it is % 26 for state aid given to multiple industries. However, interpreting the differences in estimates of the survivor functions might be misleading, because this method does not control for the remaining state aid characteristics. To disentangle the effects of those characteristics, we analyze state aid duration using multivariate parametric techniques in the next section.

<INSERT FIGURE 1 HERE>

<INSERT TABLE 9 HERE>

<INSERT TABLE 10 HERE>

Parametric Estimation

Model Specifications

The determinants of state aid duration are estimated using parametric accelerated failure-time models, which follows the parameterization

where is oddly distributed. The term “accelerated” is employed in describing these models, since instead of assuming that time to failure has some form of distribution, a distribution is rather assumed for

where is the acceleration parameter. If , then time goes by at its normal rate. If , then time goes by faster for the observational unit (which is state aid cases in our analysis), and therefore end would be expected to come sooner. On the other hand, if , then time passes at a slower pace, and thus failure would be expected to take place later.

The derivation of these models is as follows: Since , then , and

where the distribution of is specified.

In what follows, we will econometrically investigate the following two different specifications:

(**1**)

(**2**)

For each specification, we will consider exponential, Weibull, log-normal, log-logistic and Gamma regressions. The differences in these regressions originate from how we specify the distribution of . For instance, in exponential regression we assume that is distributed as exponential with mean . This yields that

where follows the extreme value distribution. For these regressions, the distribution of is summarized below:

Table 11: A Summary of Regressions in Accelerated Failure Time Metric

Regression	**Distribution of τ_j**	**Distribution of u_j**
Exponential	Exponential{exp(β_0)}	The extreme value (Gumbel) distribution
Weibull	Weibull(β_0, p)	The extreme value (Gumbel) distribution
Log-normal	Lognormal(β_0,σ)	Standard normal distribution with (0,σ)
Log-logistic	Loglogistic(β_0,γ)	Logistic distribution with (0, $\pi\gamma/3$)
Gamma	Gamma(β_0,Γ, σ)	No specific distribution

Having run all these regressions for each specification, we choose the model which fits the data best according to Akaike Information Criterion and interpret the results.

b. Determinants of State Aid Budget

The amount of aid appears to be one of the most indubitable measures to gauge the likely effects on competition. Even though the conventional intuition envisages that more aid is associated with more distortion, there are reasons to be skeptical about this statement. For instance, huge amounts of aid might be required to correct market failures in an effective way in industries such as banking. Correcting those market failures with huge sums of money will not harm but enhance competition. Thus, a massive sum of aid might well be pro-competitive. On the other hand, small amounts of aid might also have considerable impact within a small relevant market. For instance, aid given to SMEs in a small geographic area might result in distortion of competition in that market. Overall, the final impact of the budget of state aid depends on specific industry conditions such as market shares of the recipients, the level of product differentiation etc. Yet, even though the amount of aid cannot tell the likely effects of aid on competition per se, it might tell us about the extent of European state aid control.

In what follows, we will examine the determinants of state aid budget. We have two different dependent variables. The first one is the natural logarithm of the total budget of state aid (*ln_budget*) and the second one is the daily budget of aid in million Euros (*daily_budget_m*). To be more precise, the specifications of the models to be estimated are:

(**3**)

(**4**)

(**5**)

(**6**)

However, estimating this model with the standard linear regression may not be appropriate in this set up. Since the budget data is highly skewed and characterized by influential observations, we will focus on quantile regression (QR) rather than standard linear regression. In other words, the QR analysis is more appropriate in our setup, as it is not as sensitive as the OLS regression to the presence of outliers.

To express more mathematically in a budget equation setting, the q^{th} regression quantile, , is defined as a solution to the minimization problem:

QR estimator minimizes over the objective function above. We use instead of to indicate that different choices of yield different values of . If, say, , then more weight is put on prediction for observations with then for observations with . A particular case is when is set to be 0.5, giving the least absolute-deviations estimator (also known as median regression) that minimizes .

The usual gradient optimization methods to solve for this optimization problem cannot be used, since the objective function is not differentiable. Instead, it can be solved by linear programming methods. Standard errors are computed by utilizing bootstrap methods.

The estimator that minimizes is an estimator with being asymptotically normal under general conditions. For more detailed information, see Cameron and Trivedi (2005, p. 88).

5. Estimation Results and Interpretation

a. Determinants of State Aid Duration

Table 12 displays the results from various accelerated failure-time models for the first specification. In this specification, Netherlands (*nl*) is left out as the comparison base for the countries. For the fixed year effects, 2005 (*dum2005*) is excluded. Moreover, since cases of state aid given in a particular jurisdiction might be correlated and may not be independent, because they are conferred by the same governmental body, we have clustered individual state aid cases on member states in order to get robust standard errors obtained via the Huber/White/sandwich estimator of the variance. After the estimation of the specification, in order to choose the best model from this class of nonnested parametric models, Akaike Information Criterion (AIC) can be used (Cleves et al. 2008, p. 273). To be more specific, the preferred model is the one with the lowest value of the AIC. For parametric duration analysis models, the AIC is defined as

where is the log-likelihood, is the number of variables and is the number of model-specific distributional parameters.

For the first specification the minimum AIC value is obtained after Weibull regression[6]. Therefore, we will restrict our attention to Weibull regression when interpreting the estimation results. Note that negative parameter estimates imply that duration decreases with the variable of interest, while positive parameter estimates refer to increased duration associated with the variable. Firstly, state aid with multiple objectives has better prospects to endure, ceteris paribus. Exponentiating the *multiple_objectives* coefficient we see that state aid with multiple objectives last 45 % longer than state aid with the same characteristics but single objective, as 1 – exp (0.3701) = -0.4479. Also, we can say that time passes 31 % slower

[6] Together with Weibull regression, exponential, log-normal, log-logistic and Gamma forms have also been estimated.

for state aid with multiple objectives than for those with a single objective, everything else being equal. This is because exp (-0.3701) = 0.6907. This finding might be resulting from the fact that the multiple purposes that some state aid schemes serve might be complementary, and in order to have the desired effects, the EC is convinced that aid should have a longer duration. On the other hand, we report statistically insignificant results for aid given to multiple industries (*multiple_industries*).

As to member state dummies and approval year dummies, they are jointly statistically significant. Not surprisingly, average change in real GDP seems to be negatively associated with duration of state aid cases, as *gdp_avg* has a negative but statistically insignificant coefficient.

<INSERT TABLE 12 HERE>

In Table 13 we report the results from accelerated failure-time Weibull model for the second specification, as the minimum AIC value is obtained after Weibull regression. In doing so, we split our sample and restrict our attention to the cases of state aid with single objective and given to a single industry. In this specification, aid given to SMEs is left out as the base group in order to make comparisons among aid objectives. Similarly, aid given to manufacturing industries is left out as the base group for industries. Moreover, since cases of state aid given in a particular jurisdiction and in a particular industry might be correlated and may not be independent, because they are conferred by the same governmental body, and affected from common shocks, we have clustered individual state aid cases on industries in member states in order to get robust standard errors obtained via the Huber/White/sandwich estimator of the variance.

<INSERT TABLE 13 HERE>

The results indicate that average change in real GDP (*gdp_avg*) is negatively and statistically significantly (at 5 % level) linked to state aid duration. This finding suggests that governments are inclined to give state aid in longer durations when macroeconomic conditions are relatively worse. As to the comparison of state aid duration based on the objectives, we find that aid given for purposes of R&D or innovation (*rd_innovation*) and regional aid (*regional*) seem to last statistically significantly (at 5 % and 10 % significance levels, respectively)

longer than aid given to SMEs. To be more precise, aid given for purposes of R&D or innovation and regional aid survive 50 % and 29 % longer, respectively, than SME aid, ceteris paribus. On the other hand, aid for rescuing firms in difficulty (*rescue*) and remedy for a serious disturbance in the economy (*remedy*) last statistically significantly (at 1 % significance level) shorter than aid given to SMEs. Stated more explicitly, rescue aid and remedy aid last 55 % and 63 % shorter, respectively than SME aid everything else being equal. It is not surprising to find that rescue aid lasts shorter, as it reduces effective competition by supporting inefficient production, and accordingly, the EC will be stricter about its duration length. This can also be seen from the fact that rescue aid can only be granted for a maximum of six months by law.

As to the comparison of state aid duration based on the sectors, on one hand, we find that aid in industries of real estate activities (*real estate*); and public administration and defense, compulsory social security (*public administration & defense*) appears to last statistically significantly longer (52 % and 152 % longer, respectively) compared to aid given to manufacturing industries, everything else being equal. These industries can be characterized as being industries where public goods are not provided by the market up to an efficient level because it is not lucrative to do so. For instance, affordable housing for low-income households might be undersupplied in real estate industry just because it is not profitable. Moreover, public administration and defense can also be held as an example to public goods, for which it is impossible to exclude anyone from using them.

On the other hand, aid conferred to the industries of agriculture, forestry and fishing (*agriculture*); water supply, sewerage, waste management and remediation activities (*water & waste*); information and communication (*information and communication*); financial and insurance activities (*financial & insurance*); professional, scientific and technical activities (*professional & scientific*); and, arts, entertainment and recreation (*arts*) is statistically significantly less likely to end up earlier (23 %, 35 %, 22 %, 32 %, 41 and 35 % shorter, respectively) than aid given to manufacturing industries. Among these industries with a history of relatively shorter state aid duration, financial sectors are the most noteworthy ones. As previously mentioned, these financial industries such as banking are important input markets with a high potential to affect trade flows. Alternatively, the EC might have employed high levels of budget intensities instead of longer duration in state aid given in

these industries (see the next subsection). Finally, as in the first specification, country and year dummies are jointly significant.

Having estimated the determinants of state aid duration, we now turn to the determinants of state aid budget in the next section.

b. Determinants of State Aid Budget

Table 14 presents the results for the determinants of the state aid budget for the third specification. The second, third and fourth column displays the estimation results for 25^{th}, 50^{th}, and 75^{th} quantiles, respectively. The fifth and sixth columns include the results of hypothesis tests of equality of the regression coefficients at different conditional quantiles. Finally, the last column shows OLS estimates in order to compare to quantile regression estimation results.

First of all, one should note that the coefficients vary across quantiles. Most evidently, the highly statistically significant explanatory variable *multiple_objectives* (aid with more than one objective to achieve) has a bigger effect at the lower conditional quantiles of state aid budget (25^{th} and 50^{th}) while *gdp_avg* (average change in real GDP during the course of state aid in that country) has a greater impact at the highest conditional quantile (75^{th}). The standard errors slightly vary at different conditional quantiles. Moreover, OLS coefficients differ significantly from the quantile regression coefficients. The null hypothesis of coefficient equality is rejected at a level of 0.05 for *multiple_objectives* while we cannot reject it for variables *multiple_industries* and *gdp_avg*. Finally, country and year dummies are jointly significant for each quantile and OLS regression.

Focusing on the results of median regression (50^{th} quantile), we can see that average change in real GDP (*gdp_avg*) is negatively and statistically significantly (at 1 % level) linked to total state aid budget. This finding suggests that governments tend to give and the EC is more likely to approve state aid in greater amounts when macroeconomic conditions are relatively worse. Elsewhere, *multiple_objectives* has a positive and statistically significant (at 1 % level) coefficient implying that total state aid budget is greater in amount for those cases of state aid with multiple objectives compared to state aid a single objective, everything else being equal. Excluding aid given as a remedy for serious disturbance in an economy (since its budget is

enormously high), aid with multiple objectives has an excess total budget of about €38 million compared to state aid having a single objective, everything else being equal[7]. On the other hand, we report statistically insignificant results for aid given to multiple industries (*multiple_industries*).

<INSERT TABLE 14 HERE>

Table 15 provides estimation results for the fourth specification. In doing so, we split our sample and restrict our attention to the cases of state aid with single objective and given to a single industry. Firstly, the coefficients and standard errors differ considerably across quantiles. Secondly, in general, the standard errors are smaller for the lower and upper quantiles (25^{th} and 75^{th}) than median regression (50^{th}), demonstrating more precision at the tails of the distribution. In this specification, average change in real GDP appears to be negatively linked to the total budget of state aid cases, as *gdp_avg* has a negative but statistically insignificant coefficient in all quantile regressions and OLS. Focusing on median regression (50^{th} quantile) results, we see that sectoral aid (*sectoral*), regional aid (*regional*), aid given for purposes of R&D or innovation (*rd_innovation*), environmental aid (*environmental*) and aid as a remedy for a serious disturbance in the economy (*remedy*) have statistically significantly higher amounts of total budget relative to SME aid, ceteris paribus. On the other hand, the total budget is statistically significantly less for training aid (*training*) compared to SME aid, everything else being equal.

As to the comparison of total state aid budget based on the sectors, we report that the total budget of aid given in industries of real estate activities (*real estate*) seems to be statistically significantly higher than that of aid given in manufacturing industries, while cases of aid given in industries of transporting and storage (*transporting & storage*); professional, scientific and technical activities (*professional & scientific*); and arts, entertainment and recreation (*arts*) have statistically significantly higher amounts of total budget relative to state aid conferred in manufacturing industries, ceteris paribus. Finally, country and year dummies are jointly significant.

[7] This value is obtained by the multiplication of the coefficient of *multiple_objectives* by the multiplier that converts quantile regression coefficients in logs to average marginal effect in levels. For detailed information see Cameron and Trivedi (2009).

<INSERT TABLE 15 HERE>

The estimation results for the fifth specification are displayed in Table 16. The results suggest that the coefficients and the standard errors vary slightly across different quantiles. Focusing on median regression (50^{th} quantile) we see that aid with more than one objective to achieve (*multiple_objectives*) has a statistically significantly (at 10 % level) greater daily budget than state aid with the same characteristics but single objective. However, we report statistically insignificant results for aid given to multiple industries (*multiple_industries*) and average change in real GDP (*gdp_avg*). As in the previous estimations, country and year dummies are jointly significant.

<INSERT TABLE 16 HERE>

Finally, Table 17 presents the estimation results for the sixth specification. In this specification we split our sample and focus on the cases of state aid with single objective and given to a single industry. Most of the explanatory variables have a bigger effect at the upper conditional quantiles of daily state aid budget (75^{th}) while the standard errors are smaller for the lower quantile (25^{th}) than median regression and upper quantiles (50^{th} and 75^{th}), implying more precision at the lower tail of the distribution. To be consistent with previous interpretations, we restrict our attention to median regression results. We report that, sectoral aid (*sectoral*), regional aid (*regional*) and aid as a remedy for a serious disturbance in the economy (*remedy*) have statistically significantly greater amounts of daily budget relative to that of SME aid. If we were to examine daily state aid budget based on the industries, we only report that the daily budget of aid given in industries of real estate activities (*real estate*) seems to be statistically significantly higher (at 10 % level) than that of aid given in manufacturing industries, everything else being equal.

<INSERT TABLE 17 HERE>

6. Discussion and Conclusion

Having estimated the determinants of state aid duration and budget, we have ranked the objectives for which and the industries to which aid is conferred based on duration and the amount of total and daily budget. As Table 18 suggests, when other variables are controlled

for, the top three state aid objectives with longest duration are aid given for services of general economic interest, R&D or innovation aid, and environmental aid. On the other hand, remedy for serious disturbance aid, energy saving aid, and rescue aid have the shortest durations, everything else being equal. As to the total budget ranking, remedy for serious disturbance aid, sectoral aid, and environmental protection aid have the highest amount of total budgets while training aid, energy saving aid and employment aid have the least amount of total aid budget.

<INSERT TABLE 18 HERE>

These rankings suggest that the EC is keen on eliminating negative externalities, since environmental protection aid, which is thought to be in the sphere of negative externalities, has both a very long duration and a very high amount of total budget. This long duration and high amount of budget incentivize companies, which are constrained by additional costs, to deliver environmental gains. Furthermore, aid given for services of general economic interest draws a special attention in this context, as it has both a long duration and high amount of total budget, too. As stated by Nicolaides (2003), services of general economic interest (SGEI) occupy a specific position in the economies of the member states of EU. These services are not necessarily public goods that are under-supplied or not supplied by the market. Instead, SGEI are services for supplies of which member states impose specific terms and prices. Thus, at the heart of the problem lies the inadequacy of suppliers to cover their costs due to the conditions imposed on them by member states. According to the rankings based on our estimations, the EC approves cases of aid given for services of general economic interest with a longer duration and a higher amount of budget so as to prevent those inadequacies. Finally, the length of R&D or innovation aid might be associated with keeping companies incentivized for a long time so as to counter-weigh inefficiencies in R&D activities due to market failures. However, the budget of R&D or innovation aid is at a modest level, since subsidies for R&D may also distort competition. For instance, a successful process innovation may have a distortionary impact on pricing and entry/exit decisions by decreasing the firm's fixed or variable costs of production.

Elsewhere, remedy for serious disturbance aid has the shortest duration and the highest level of both daily and total budget. In order to overcome serious disturbances in the economy in an effective way, huge amounts of aid might be required. But the gigantic amount spent on

correcting those disturbances might also have undesired impact on effective competition in a market. In order to keep that undesired effect to a minimum, the duration of this type of aid is set to be very short. Following remedy for a serious disturbance aid, sectoral aid has the second highest level of total budget. Sectoral aid consists of aid to facilitate the development of certain economic activities in certain sectors of the economy. These sectors include shipbuilding, transport, broadcasting, coal, steel etc. Facilitating the development of overall economic activities in these industries necessitates huge sums of money, which explains why sectoral aid has a very high level of total budget. But sectoral aid has also a short duration, as in the case of remedy for serious disturbance aid, to keep the undesired effects to minimum.

On the other hand, it is not surprising to find that rescue aid both lasts shorter and has relatively low levels of budget, as it reduces effective competition by supporting inefficient production, and accordingly, the EC will be stricter about its duration length and aid budget. This can also be seen from the fact that rescue aid can only be granted for a maximum of six months by law.

Elsewhere training and employment aids have both relatively shorter durations and less amounts of budget. Even though these types of aid are seen as benevolent, one might also take into account that the EC has issued a warning that employment aid might result in adverse effects that might offset the immediate effects of job creation; they could even lead to distortions in competition in the long run. Consequently, as put by Bree (2003), there is a tension between employment assistance and competitiveness.

As to the rankings of industries to which aid is given based on duration and budget, when other variables are controlled for, the top three industries with longest duration are industries of public administration and defense; compulsory social security; real estate activities; and accommodation and food service activities. On the other hand, the industries of real estate activities; of accommodation and food service activities; and of manufacturing rank top in terms of total budget. The longevity and the enormity of aid in industries of real estate activities reveal that aid with longer duration and with a high level of budget is given to industries that can be characterized as being industries where public goods are not provided by the market up to an efficient level because it is not lucrative to do so. For instance, affordable housing for low-income households might be undersupplied in real estate industry just because it is not profitable. In contrast, even though aid given to industries of public

administration and defense; compulsory social security has the longest duration, it has the least amount of budget. More interestingly, aid given to the industries of accommodation and food service activities has both relatively longer durations and higher levels of budget.

This paper has provided an analysis of the European Commission (EC) decisions on state aid control. In doing so, we have adopted a positive approach rather than a normative approach, explaining *what the state of affairs is* instead of *what the state of affairs ought to be*. We have characterized the last decade of European state aid control policy in summary statistics and, detailed quantile regression and duration analysis on 550 state aid cases in total.

In this analysis, we have considered three imperfect proxies to measure the impact of state aid: duration of state aid, total budget of state aid and daily budget of state aid. While interpreting the estimation results, we mainly focused on the first two measures. By using these imperfect proxies, we have attempted to explain the extent of European state aid control. We are well aware of that both duration and budget information are clearly unsatisfactory in capturing the economic impact of state aid. It might be the case that state aid has continued to exist on paper for months with little impact on market structure. Alternatively, even though billions of Euros have been spent for the sake of aid, it might have little sustained effect on, say, facilitating economic activities in an industry. Ideally, we would like to compare the prices, number of firms, competition level, profits and so on that prevailed with what would have occurred absent the state aid. However, in order to perform this kind of rigorous counterfactual analysis we need very detailed and specific information for cases of aid, which is clearly missing in the current set up. Given the information that we have, we find that aid with multiple objectives to achieve has both longer durations and higher amounts of budget. We also see that for some aid objectives or industries, the EC approves cases of aid with both longer durations and higher levels of budget. On the other hand, for some class of aid objectives and industries, there is a trade-off between duration and the level of budget so as to counter-balance the undesired effects.

According to Heidhues and Nitsche (2006) it is obvious that EU state aid control has evolved over time. What once was originally intended to address concerns about export subsidies and strategic trade has now become Article 107 TFEU, which is the legal basis for state aid control in Europe. In the light of the findings above, the emphasis of state aid control is more on market failures mostly associated with externalities and public goods.

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Table 1: Variables and Definitions

Core Characteristics	
multiple_objectives	1 = aid has more than one objective to achieve
multiple_industries	1 = aid is given to several industries
ln_budget	Log of total budget of state aid
daily_budget_m	Daily budget of aid in million Euros (inflation adjusted)
Primary Objective Dummies	
training	1 = Training
regional	1 = Regional aid
sectoral	1 = Sectoral aid
rd_innovation	1 = Research and development or innovation
employment	1 = Employment
energy	1 = Energy saving
rescue	1 = Rescuing firms in difficulty
sme	1 = SMEs (small- and medium size enterprises)
restructuring	1 = Restructuring firms in difficulty
environmental	1 = Environmental protection
general interest	1 = Services of general economic interest
remedy	1 = Remedy for a serious disturbance in the economy
other	1= Other
Industry Dummies	
agriculture	1 = Aid is given to the industry of agriculture, forestry and fishing
mining	1 = Aid is given to the industry of mining and quarrying
manufacturing	1 = Aid is given to the industry of manufacturing
electricity & gas	1 = Aid is given to the industry of electricity, gas, steam and air conditioning supply
water & waste	1 = Aid is given to the industry of water supply; sewerage; waste management and remediation activities
construction	1 = Aid is given to the industry of construction
motor	1 = Aid is given to the industry of wholesale and retail trade; repair of motor vehicles and motorcycles
transporting & storage	1 = Aid is given to the industry of transporting and storage
accommodation	1 = Aid is given to the industry of accommodation and food service activities
information & communication	1 = Aid is given to the industry of information and communication
financial & insurance	1 = Aid is given to the industry of financial and insurance activities
real estate	1 = Aid is given to the industry of real estate activities
professional & scientific	1 = Aid is given to the industry of professional, scientific and technical activities
public administration & defense	1 = Aid is given to the industry of public administration and defense; compulsory social security
arts	1 = Aid is given to the industry of arts, entertainment and recreation
other services	1 = Aid is given to the industry of other services activities
Country Dummies	
at	1 = Aid is given in Austria
be	1 = Aid is given in Belgium
cy	1 = Aid is given in Cyprus

cz	1 = Aid is given in Czech Republic
dk	1 = Aid is given in Denmark
ee	1 = Aid is given in Estonia
fi	1 = Aid is given in Finland
fr	1 = Aid is given in France
de	1 = Aid is given in Germany
gr	1 = Aid is given in Greece
hu	1 = Aid is given in Hungary
ie	1 = Aid is given in Ireland
it	1 = Aid is given in Italy
lv	1 = Aid is given in Latvia
lt	1 = Aid is given in Lithuania
lux	1 = Aid is given in Luxembourg
mt	1 = Aid is given in Malta
nl	1 = Aid is given in Netherlands
pl	1 = Aid is given in Poland
pt	1 = Aid is given in Portugal
ro	1 = Aid is given in Romania
sk	1 = Aid is given in Slovakia
si	1 = Aid is given in Slovenia
es	1 = Aid is given in Spain
se	1 = Aid is given in Sweden
uk	1 = Aid is given in United Kingdom
Macro Variables	
gdp_avg	Average change in real GDP during the course of state aid in that country

Table 2: Sample Statistics

Countries	Multiple Objectives			Multiple Industries			Daily Budget in million €s			Total Budget in million €s			Duration in days		
	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.
Austria	19	0.32	0.48	19	0.21	0.42	19	40.30	108.00	19	13544.13	31957.09	19	836.00	705.20
Belgium	54	0.04	0.19	54	0.02	0.14	54	14.80	108.00	54	2700.55	19461.54	54	943.26	472.84
Cyprus	6	0.00	0.00	6	0.00	0.00	6	2.75	6.73	6	501.58	1223.97	6	270.83	187.39
Czech Republic	7	0.14	0.38	7	0.57	0.53	7	0.05	0.08	7	66.26	140.28	7	661.00	531.52
Denmark	12	0.08	0.29	12	0.08	0.29	12	90.20	210.00	12	15734.92	36540.09	12	987.83	1,068.63
Estonia	9	0.11	0.33	9	0.56	0.53	9	0.05	0.12	9	18.24	26.93	9	624.33	618.93
Finland	7	0.14	0.38	7	0.00	0.00	7	72.30	120.00	7	14533.56	23491.96	7	848.29	767.87
France	28	0.04	0.19	28	0.04	0.19	28	52.10	235.00	28	11093.32	50053.80	28	1,436.07	857.99
Germany	90	0.18	0.38	90	0.01	0.11	90	35.70	229.00	90	10760.04	67818.10	90	876.58	561.30
Greece	12	0.17	0.39	12	0.08	0.29	12	34.80	85.10	12	4639.28	10612.84	12	982.42	751.01
Hungary	4	0.00	0.00	4	0.25	0.50	4	16.10	17.00	4	3601.54	3567.57	4	298.00	158.85
Ireland	12	0.17	0.39	12	0.42	0.51	12	3.54	7.92	12	753.03	1439.37	12	860.50	582.97
Italy	72	0.10	0.30	72	0.19	0.40	72	0.05	0.13	72	46.59	165.82	72	779.54	619.95
Latvia	5	0.00	0.00	5	0.00	0.00	5	14.80	5.27	5	2680.21	958.93	5	181.00	1.22
Lithuania	5	0.40	0.55	5	0.20	0.45	5	0.01	0.01	5	15.71	12.41	5	1,508.00	434.53
Luxembourg	2	0.00	0.00	2	0.50	0.71	2	472.00	667.00	2	56151.17	79402.20	2	1,168.50	1,484.22
Malta	1	1.00	-	1	0.00	-	1	0.01	-	1	15.26	-	1	1,491.00	-
Netherlands	23	0.04	0.21	23	0.00	0.00	23	96.30	316.00	23	17530.09	57580.07	23	703.26	702.95
Poland	18	0.22	0.43	18	0.11	0.32	18	4.92	14.20	18	1172.66	3398.43	18	1,074.17	788.11
Portugal	12	0.00	0.00	12	0.08	0.29	12	5.69	13.70	12	1974.21	5492.19	12	930.00	695.94
Romania	2	0.00	0.00	2	0.50	0.71	2	0.25	0.22	2	127.91	21.58	2	868.00	837.21
Slovakia	3	0.33	0.58	3	0.00	0.00	3	0.58	0.98	3	235.27	371.36	3	1,102.33	718.54
Slovenia	5	0.00	0.00	5	0.20	0.45	5	50.50	28.30	5	9377.76	5249.52	5	204.40	42.23
Spain	57	0.28	0.45	57	0.09	0.29	57	36.20	145.00	57	9526.99	36386.86	57	821.30	648.13
Sweden	18	0.22	0.43	18	0.06	0.24	18	9.60	23.60	18	1887.73	4592.12	18	636.94	542.22
United Kingdom	67	0.01	0.12	67	0.03	0.17	67	90.30	551.00	67	10250.33	53449.51	67	804.27	592.11
All	550	0.13	0.33	550	0.10	0.30	550	36.93	243.21	550	7171.4	40446.39	550	858.53	653.98

Table 3: Sample Statistics (Crisis Measures Excluded)

Countries	Multiple Objectives			Multiple Industries			Daily Budget in €s			Total Budget in million €s			Duration in days		
	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.
Austria	15	0.20	0.41	15	0.20	0.41	15	190,781	447,385	15	90	234	15	931	764
Belgium	52	0.04	0.19	52	0.02	0.14	52	13,682	74,530	52	26	163	52	973	457
Cyprus	5	0.00	0.00	5	0.00	0.00	5	3,815	5,456	5	2	4	5	289	204
Czech Republic	7	0.14	0.38	7	0.57	0.53	7	51,882	76,863	7	66	140	7	661	532
Denmark	9	0.11	0.33	9	0.11	0.33	9	6,198	4,756	9	9	9	9	1,258	1,114
Estonia	9	0.11	0.33	9	0.56	0.53	9	49,662	115,991	9	18	27	9	624	619
Finland	4	0.25	0.50	4	0.00	0.00	4	9,965	8,050	4	13	16	4	1,324	690
France	25	0.04	0.20	25	0.04	0.20	25	336,094	768,745	25	163	293	25	1,584	785
Germany	83	0.16	0.37	83	0.01	0.11	83	76,464	171,596	83	63	127	83	924	557
Greece	10	0.20	0.42	10	0.10	0.32	10	70,886	60,968	10	97	90	10	1,150	708
Hungary	1	0.00	-	1	1.00	.	1	1,164	-	1	1	-	1	516	-
Ireland	10	0.20	0.42	10	0.50	0.53	10	157,780	320,275	10	154	351	10	996	541
Italy	72	0.10	0.30	72	0.19	0.40	72	52,680	130,243	72	47	166	72	780	620
Lithuania	5	0.40	0.55	5	0.20	0.45	5	9,116	6,296	5	16	12	5	1,508	435
Luxembourg	1	0.00	-	1	1.00	-	1	2,404	-	1	5	-	1	2,218	-
Malta	1	1.00	-	1	0.00	-	1	10,234	-	1	15	-	1	1,491	-
Netherlands	20	0.05	0.22	20	0.00	0.00	20	23,394	42,611	20	17	29	20	782	723
Poland	16	0.25	0.45	16	0.13	0.34	16	65,849	180,378	16	13	26	16	1,178	775
Portugal	9	0.00	0.00	9	0.11	0.33	9	50,344	66,711	9	41	45	9	1,152	663
Romania	2	0.00	0.00	2	0.50	0.71	2	253,116	219,276	2	128	22	2	868	837
Slovakia	2	0.50	0.71	2	0.00	0.00	2	13,950	2,099	2	21	10	2	1,460	517
Slovenia	1	0.00	-	1	1.00	.	1	1,048	-	1	0	.	1	279	-
Spain	52	0.31	0.47	52	0.10	0.30	52	51,906	122,980	52	44	109	52	871	656
Sweden	12	0.17	0.39	12	0.08	0.29	12	53,626	39,685	12	48	63	12	862	537
United Kingdom	63	0.02	0.13	63	0.03	0.18	63	44,970	209,320	63	28	129	63	841	591
All	486	0.13	0.33	486	0.11	0.31	486	70,105.68	243,050.90	486	50.58	151.72	486	940.16	651.75

Table 4: Sample Statistics According to the Breakdown of Industries

Industries	Daily Budget in million €s			Total Budget in million €s			Duration in days		
	n	**Mean**	**Std. Dev.**	**n**	**Mean**	**Std. Dev.**	**n**	**Mean**	**Std. Dev.**
agriculture	27	0.01	0.01	27	3.57	6.41	27	648.96	486.94
mining	4	0.01	0.01	4	10.78	20.12	4	955.50	658.93
manufacturing	241	0.07	0.24	241	52.66	147.84	241	1,047.41	645.05
electricity & gas	14	0.13	0.22	14	54.80	122.22	14	950.07	992.21
water & waste	1	0.00	-	1	0.84	-	1	730.00	-
construction	9	0.06	0.11	9	101.66	179.94	9	1,205.44	627.79
motor	12	0.07	0.19	12	14.23	28.75	12	794.67	448.55
transporting & storage	31	0.05	0.18	31	46.89	197.60	31	695.81	589.56
accommodation	24	0.19	0.53	24	93.43	190.70	24	1,246.46	767.88
information & communication	16	0.05	0.06	16	57.31	71.73	16	1,151.25	611.64
financial & insurance	68	298.18	636.90	68	57,649.41	102,243.00	68	254.47	158.41
real estate	1	0.15	-	1	218.09	-	1	1,460.00	-
professional & scientific	8	0.09	0.23	8	92.27	255.23	8	465.75	473.27
public administration &defense	1	0.00	-	1	0.50	-	1	1,521.00	-
arts	1	0.00	-	1	0.62	-	1	730.00	-
other services	38	0.01	0.03	38	6.70	23.53	38	718.92	573.07
All	496	40.93	255.81	496	7,944.90	42,523.67	496	867.24	658.98

Table 5: Sample Statistics According to the Breakdown of Objectives

Objectives	Daily Budget in million €s			Total Budget in million €s			Duration in days		
	n	**Mean**	**Std. Dev.**	**n**	**Mean**	**Std. Dev.**	**n**	**Mean**	**Std. Dev.**
training	153	0.01	0.02	153	3.95	12.26	153	757.95	449.32
regional	60	0.09	0.15	60	80.77	134.51	60	1,212.13	560.29
sectoral	1	0.11	-	1	77.82	-	1	730.00	-
rd_innovation	62	0.05	0.11	62	53.75	160.84	62	1,123.39	760.73
employment	9	0.43	0.84	9	159.76	302.98	9	492.33	262.25
energy	1	0.00	-	1	0.32	-	1	454.00	-
rescue	9	0.65	1.02	9	85.61	167.16	9	282.11	226.33
sme	94	0.03	0.07	94	19.37	39.20	94	799.12	690.67
restructuring	5	0.35	0.75	5	199.43	403.86	5	1,057.80	416.80
environmental	26	0.11	0.20	26	79.67	228.48	26	1,083.39	736.13
general interest	4	0.73	0.45	4	787.04	517.91	4	912.00	364.67
remedy	56	296.44	650.77	56	50,241.24	79,801.95	56	221.68	103.73
All	480	34.65	240.20	480	5,901.28	31,487.40	480	814.86	623.98

Table 6: Mean Duration and Budget of State Aid Cases by Selected Characteristics

	Duration in days						**Daily budget in million €s**						**Total budget in million €s**					
	Single Objective			Multiple Objectives			Single Objective			Multiple Objectives			Single Objective			Multiple Objectives		
	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.	n	Mean	Std. Dev.
Multiple Industry																		
No	438	829	633	59	1,157	770	438	37.96	251.23	59	62.34	287.11	438	6,460	32,911	59	18,832	84,471
Yes	42	664	500	11	1,162	821	42	0.11	0.22	11	0.07	0.08	42	73	221	11	49	47

Table 7: Log-Rank and Wilcoxon (Breslow) Tests for Equality of Survivor Functions

Log-Rank Test			Wilcoxon (Breslow) Test			
	Observed	Expected		Observed	Expected	Sum of Ranks
Single Objective	480	449.78	Single Objective	480	449.78	9279
Multiple Objectives	70	100.22	Multiple Objectives	70	100.22	-9279
Total	550	550.00	Total	550	550.00	0
chi2(1) = 12.25			chi2(1) = 12.27			
Pr>chi2 = 0.0005			Pr>chi2 = 0.0005			
	Observed	Expected		Observed	Expected	Sum of Ranks
Single Industry	497	503.14	Single Industry	497	503.14	-1825
Multiple Industries	53	46.86	Multiple Industries	53	46.86	1825
Total	550	550.00	Total	550	550.00	0
chi2(1) = 0.93			chi2(1) = 0.70			
Pr>chi2 = 0.3343			Pr>chi2 = 0.4026			

Table 8: Stratified Tests for Equality of Survivor Functions

Stratified Log-Rank Test (by Multiple Industries)			Stratified Log-Rank Test (by Multiple Objectives)		
	Events Observed	Expected Events (*)		Events Observed	Expected Events (*)
Single Objective	480	449.22	Single Industry	497	506.13
Multiple Objectives	70	100.78	Multiple Industries	53	43.87
Total	550	550.00	Total	550	550.00
(*) sum over calculations within multiple_industries			(*) sum over calculations within multiple_objectives		
chi2(1) = 12.95			chi2(1) = 2.24		
Pr>chi2 = 0.0003			Pr>chi2 = 0.1344		

Non-Parametric Analysis of State Aid Duration

Figure 1: Graphical Illustration of Kaplan-Meier Survival Estimate

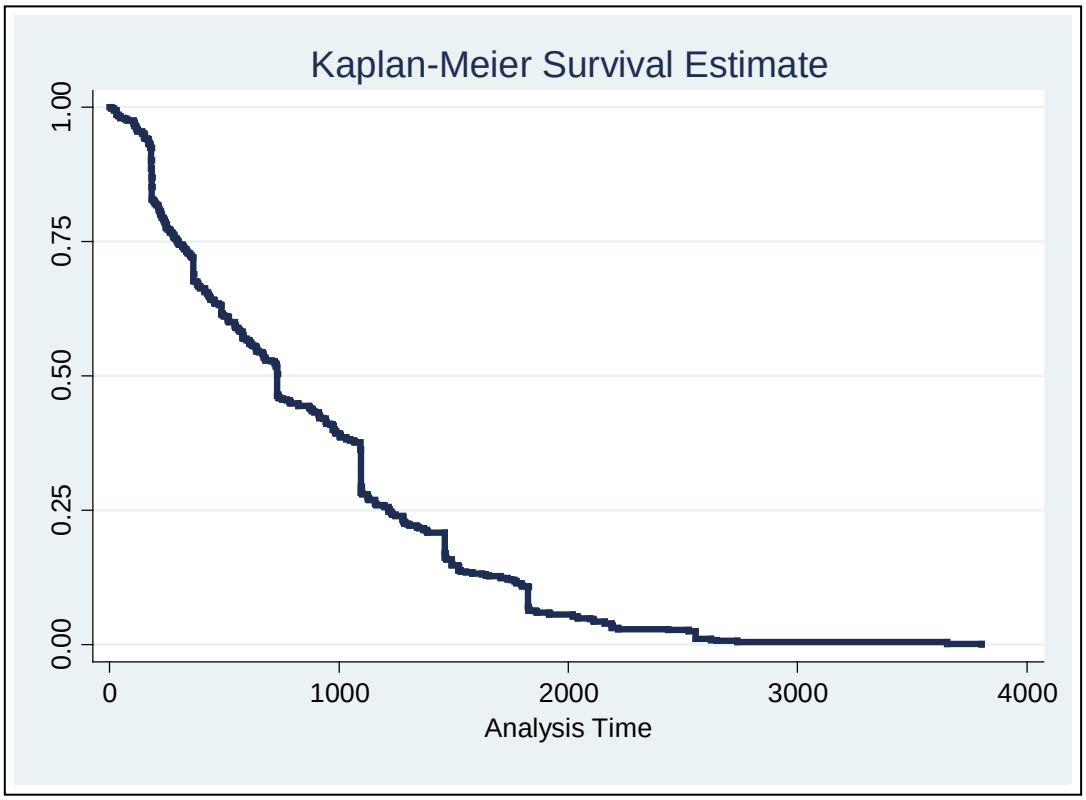

Table 9: Kaplan-Meier Estimator for Aid Objectives

		Survival Probability	
		Single Objective	Multiple Objectives
Time	7	0.9979	1
	481	0.6125	0.7714
	955	0.3833	0.6000
	1429	0.1854	0.3714
	1903	0.0563	0.0857
	2377	0.0208	0.0857
	2851	0.0021	0.0286
	3325	0.0021	0.0286
	3799	-	0.0143
	4273	-	-

Table 10: Kaplan-Meier Estimator for Aid Receiving Industries

		Survival Probability	
		Single Industry	Multiple Industries
Time	7	0.9980	1.0000
	481	0.6298	0.6604
	955	0.4266	0.2642
	1429	0.2113	0.1887
	1903	0.0604	0.0566
	2377	0.0282	0.0377
	2851	0.0060	-
	3325	0.0060	-
	3799	0.0020	-
	4273	-	-

Table 12: Determinants of the Duration of State Aid Cases for the First Specification

Duration in days	**Weibull Regression**	
constant	6.6987	***
	(0.1889)	
multiple_objectives	0.3701	***
	(0.0821)	
multiple_industries	-0.0928	
	(0.0944)	
gdp_avg	-0.0402	
	(0.0291)	
Countries		
at	0.2091	*
	(0.1200)	
be	0.4638	***
	(0.1219)	
cy	-0.6478	***
	(0.1455)	
cz	0.2847	
	(0.1744)	
dk	0.0160	
	(0.1069)	
ee	0.1413	
	(0.1759)	
fi	0.3238	***
	(0.1064)	
fr	0.5858	***
	(0.1067)	
de	0.1842	*
	(0.1111)	
gr	0.5083	***
	(0.1557)	
hu	-0.3431	***
	(0.1236)	
ie	0.2820	**
	(0.1246)	
it	0.0634	
	(0.1188)	
lv	-1.0856	***
	(0.2386)	
lt	0.8274	***
	(0.1683)	
lux	0.7851	***
	(0.1827)	
mt	0.6917	***
	(0.1564)	
pl	0.6103	***
	(0.1708)	
pt	0.2585	**
	(0.1231)	
ro	0.5959	***
	(0.1138)	
sk	0.5617	***
	(0.1464)	
si	-0.6823	***
	(0.1463)	
es	0.1523	
	(0.1150)	
se	0.0915	
	(0.1036)	
uk	0.0975	
	(0.1133)	

Table 12: Determinants of the Duration of State Aid Cases for the First Specification (Continued)

Duration in days	**Weibull Regression**	
Year Dummies		
dum1998	0.3508	*
	(0.1911)	
dum1999	-0.0889	
	(0.4015)	
dum2000	0.7544	***
	(0.1915)	
dum2001	0.4907	***
	(0.1757)	
dum2002	0.2727	*
	(0.1401)	
dum2003	0.2536	**
	(0.1269)	
dum2004	-0.1181	
	(0.1596)	
dum2006	0.0521	
	(0.1362)	
dum2007	-0.3103	**
	(0.1443)	
dum2008	-0.3987	***
	(0.1456)	
dum2009	-1.0197	***
	(0.2410)	
Statistics		
Observations	550	
Log-likelihood	-604.46	
Akaike	1244.92	

Table 13: Determinants of the Duration of State Aid Cases for the Second Specification (given for a single objective and to a single industry)

Duration in days	**Weibull Regression**	
constant	6.5422	***
	(0.2621)	
gdp_avg	-0.0509	**
	(0.0236)	
Objectives		
training	-0.0450	
	(0.1839)	
sectoral	-0.1161	
	(0.3444)	
regional	0.2540	*
	(0.1478)	
rd_innovation	0.4025	**
	(0.1992)	
employment	-0.4613	
	(0.3129)	
energy	-0.8045	
	(0.5166)	
rescue	-0.7983	***
	(0.3089)	
restructuring	-0.0198	
	(0.2245)	
environmental	0.3229	
	(0.2712)	
general interest	0.4421	
	(0.3966)	
remedy	-0.9915	***
	(0.2972)	
Industries		
agriculture	-0.2655	*
	(0.1413)	
mining	0.0051	
	(0.0968)	
electricity & gas	-0.1629	
	(0.3184)	
water & waste	-0.4371	***
	(0.1051)	
construction	-0.1085	
	(0.1645)	
motor	-0.1293	
	(0.1434)	
transporting & storage	-0.1933	
	(0.2292)	
accommodation	0.0781	
	(0.1569)	
information & communication	-0.2518	**
	(0.1186)	
financial & insurance	-0.3863	**
	(0.1583)	
real estate	0.4174	***
	(0.1234)	
professional & scientific	-0.5209	***
	(0.1751)	
public administration & defense	0.9227	***
	(0.1899)	
arts	-0.4371	***
	(0.1051)	
other services	-0.2099	
	(0.2039)	

Table 13: Determinants of the Duration of State Aid Cases for the Second Specification (given for a single objective and to a single industry) (Continued)

Duration in days	**Weibull Regression**	
Countries		
at	0.5954	**
	(0.2318)	
be	0.7414	***
	(0.1990)	
cy	-0.2733	
	(0.2419)	
cz	0.0739	
	(0.2127)	
dk	0.1815	
	(0.2092)	
ee	0.5848	*
	(0.3473)	
fi	0.4929	*
	(0.2993)	
fr	0.7462	***
	(0.1901)	
de	0.2861	
	(0.1967)	
gr	0.8113	***
	(0.2644)	
hu	0.1482	
	(0.1684)	
ie	0.0080	
	(0.1884)	
it	0.2455	
	(0.1883)	
lv	-0.4003	*
	(0.2433)	
lt	1.0246	***
	(0.3664)	
lux	-1.8523	***
	(0.2649)	
pl	0.9899	***
	(0.3441)	
pt	0.6084	***
	(0.1765)	
ro	1.0399	***
	(0.2243)	
sk	0.6681	***
	(0.1998)	
si	0.1472	
	(0.1792)	
es	0.4532	*
	(0.2368)	
se	0.3078	
	(0.2020)	
uk	0.2784	
	(0.1831)	

Table 13: Determinants of the Duration of State Aid Cases for the Second Specification (given for a single objective and to a single industry) (Continued)

Duration in days	**Weibull Regression**	
Year Dummies		
dum1998	0.4917	*
	(0.2578)	
dum1999	0.0046	
	(0.2474)	
dum2000	0.5944	**
	(0.2581)	
dum2001	0.4203	**
	(0.2052)	
dum2002	0.2894	*
	(0.1647)	
dum2003	0.2746	**
	(0.1268)	
dum2004	-0.1412	
	(0.1572)	
dum2006	-0.1717	
	(0.1672)	
dum2007	-0.4924	***
	(0.1657)	
dum2008	-0.2594	
	(0.1736)	
dum2009	-0.0562	
	(0.2227)	
Statistics		
Observations	438	
Log-likelihood	-420.96	
Akaike	943.91	

Table 14: Determinants of the Budget of State Aid Cases for the Third Specification

	Quantile Regression						Test of Equality for Coefficients		OLS	
ln_budget	q25		q50		q75		F-Statistic	p-value		
constant	12.3793	***	13.7923	***	17.5595		11.50	0.000	14.9794	
	(0.7015)		(1.0396)		(0.9636)				(0.4148)	
multiple_objectives	1.6106	***	1.5915	***	0.5468		4.95	0.007	1.0576	**
	(0.4436)		(0.4937)		(0.4847)				(0.4124)	
multiple_industries	0.2281		0.3049		0.2128		0.02	0.979	0.0322	
	(0.7833)		(0.4298)		(0.4448)				(0.6882)	
gdp_avg	-0.2327	*	-0.2844	***	-0.3417	***	0.37	0.694	-0.3186	**
	(0.1209)		(0.0976)		(0.1050)				(0.1180)	
Countries										
at	2.3314		2.5546	*	1.3035		0.77	0.462	1.1981	***
	(2.0958)		(1.3987)		(1.7448)				(0.3312)	
be	0.2279		-0.0846		-3.1267	***	4.14	0.017	-1.0818	***
	(0.8701)		(1.2225)		(0.8358)				(0.3506)	
cy	-0.4261		0.7177		-1.9510		2.55	0.079	-0.1962	
	(1.6324)		(1.8030)		(1.4389)				(0.3548)	
cz	2.0008		2.6792	*	1.8433		0.27	0.762	1.7852	***
	(1.3276)		(1.5725)		(1.3546)				(0.5904)	
dk	0.1637		0.5424		-0.4917		0.08	0.926	-0.2581	
	(2.1193)		(1.5361)		(1.6539)				(0.3733)	
ee	1.1640		3.4289	*	0.7222		1.92	0.148	1.1650	**
	(1.8654)		(1.8358)		(1.3185)				(0.5067)	
fi	2.1821	*	2.1628		-0.9637		1.34	0.263	1.7842	***
	(1.2617)		(1.5193)		(2.2184)				(0.3211)	
fr	3.3785	**	4.0776	***	1.3076		5.57	0.004	2.6215	***
	(1.5084)		(1.2567)		(1.2866)				(0.2552)	
de	0.4346		2.2951	**	0.1233		3.24	0.040	0.3606	
	(0.9924)		(1.1471)		(0.8779)				(0.2732)	
gr	2.2182		4.4500	***	2.0887		1.91	0.150	3.1152	***
	(1.4728)		(1.2866)		(1.8534)				(0.2558)	
hu	4.0328		1.7608		-2.6167		1.98	0.139	1.2016	**
	(3.0244)		(2.7138)		(2.9147)				(0.5151)	
ie	3.5592	***	3.2162	***	0.3934		5.35	0.005	2.1434	***
	(0.8174)		(1.1161)		(1.2366)				(0.3223)	
it	0.1901		1.9955	**	-0.7330		4.18	0.016	-0.0283	
	(0.7815)		(1.0033)		(1.0114)				(0.2827)	
lv	2.4928		1.9217		-2.6561		4.06	0.018	-0.6495	
	(2.3192)		(2.3025)		(1.8409)				(1.3811)	
lt	3.1519	**	3.8789	**	1.5931		1.47	0.230	2.6234	***
	(1.2453)		(1.7305)		(1.7418)				(0.6019)	
lux	3.4963	*	2.1431		3.6102		0.75	0.474	2.5590	***
	(1.9644)		(1.6175)		(2.2848)				(0.6339)	
mt	1.7098		1.3544		-1.4927		2.51	0.082	-0.1021	
	(1.4119)		(1.0386)		(1.0007)				(0.6556)	
pl	0.8342		1.8818		0.3419		0.97	0.378	0.9108	**
	(0.7520)		(1.5125)		(1.3373)				(0.4391)	
pt	3.0288	*	4.1750	***	1.4649		3.16	0.043	2.6933	***
	(1.6281)		(1.4758)		(1.4660)				(0.2897)	
ro	5.7291	**	5.4595	**	2.8699	*	2.17	0.115	4.4966	***
	(2.7971)		(2.4240)		(1.5489)				(0.5914)	
sk	3.0149	*	2.5975	*	0.6395		1.63	0.198	1.0976	***
	(1.5785)		(1.4746)		(1.2474)				(0.3566)	
si	4.6285	*	4.4844		2.5447		0.47	0.624	3.4381	***
	(2.6098)		(2.7791)		(2.8089)				(0.4024)	
es	-0.2518		1.5796		0.4574		2.44	0.088	0.3247	
	(0.6610)		(1.1721)		(1.0332)				(0.2354)	
se	2.2946	**	2.5052	**	-0.3776		4.26	0.015	0.7175	**
	(0.9970)		(1.0054)		(0.9833)				(0.3213)	
uk	0.3533		0.9241		-0.9043		1.68	0.187	-0.2346	
	(1.1153)		(1.0758)		(1.0361)				(0.2120)	

Table 14: Determinants of the Budget of State Aid Cases for the Third Specification (Continued)

	Quantile Regression						Test of Equality for Coefficients		OLS	
ln budget	q25		q50		q75		F-Statistic	p-value		
Year Dummies										
dum1998	4.6834	***	1.6072	***	0.7258		5.50	0.004	2.5413	***
	(0.7492)		(0.5342)		(0.7205)				(0.3804)	
dum1999	3.6143	***	3.2325	**	1.7080		1.04	0.355	2.7197	***
	(1.2573)		(1.2695)		(1.2584)				(0.6504)	
dum2000	3.4552	***	2.0858	***	1.6856	**	1.11	0.330	2.0252	**
	(0.8002)		(0.6459)		(0.6922)				(0.7369)	
dum2001	1.3878		0.8554		0.2944		0.34	0.714	0.7856	
	(1.1934)		(0.8873)		(0.8008)				(0.7417)	
dum2002	0.7106		1.0834	**	0.7019		0.21	0.811	0.8178	
	(1.1757)		(0.4894)		(0.6268)				(0.4858)	
dum2003	0.8301		-0.1587		-0.2515		1.42	0.242	0.0561	
	(1.0249)		(0.6640)		(0.7072)				(0.4253)	
dum2004	-0.6071		-0.1846		-0.3502		0.09	0.911	-0.3812	
	(0.8851)		(0.6524)		(0.7007)				(0.4754)	
dum2006	1.3775	***	0.3437		0.9217		1.56	0.211	0.9199	
	(0.5098)		(0.5931)		(0.6459)				(0.6065)	
dum2007	0.9342		-0.1508		-0.4075		1.52	0.220	-0.0183	
	(0.6393)		(0.5497)		(0.4412)				(0.5578)	
dum2008	1.1575		0.1893		0.3917		0.63	0.531	1.0391	
	(0.8113)		(0.7856)		(0.6346)				(0.7805)	
dum2009	4.3854	***	5.2444	***	5.8546	***	0.86	0.425	4.9030	***
	(1.0219)		(1.2444)		(0.9641)				(0.9276)	
Statistics										
Observations	550		550		550				550	
Pseudo R-Squared	0.22		0.28		0.35					
R-Squared									0.43	

Table 15: Determinants of the Budget of State Aid Cases for the Fourth Specification (given for a single objective and to a single industry)

	Quantile Regression						Test of Equality for Coefficients		OLS	
ln_budget	q25		q50		q75		F-Statistic	p-value		
constant	10.2700	***	13.7599	***	15.3534	***	8.75	0.000	13.2606	***
	(1.3093)		(0.9035)		(0.8189)				(0.7620)	
gdp_avg	-0.0100		-0.0690		-0.0000		0.98	0.377	-0.0557	
	(0.0885)		(0.0574)		(0.0537)				(0.0740)	
Objectives										
training	-0.3912		-1.4736	**	-0.1849		2.16	0.117	-0.6594	
	(0.9353)		(0.6139)		(0.5174)				(0.6142)	
sectoral	5.6633	**	3.5618	*	3.2872	*	2.08	0.127	3.9454	***
	(2.8431)		(2.0722)		(1.6855)				(0.6580)	
regional	3.5800	***	2.0551	***	2.5418	***	2.13	0.121	2.7803	***
	(0.7705)		(0.3640)		(0.5521)				(0.6089)	
rd_innovation	2.7932	***	1.5766	**	2.2909	***	1.50	0.224	1.9718	***
	(1.0315)		(0.7095)		(0.5502)				(0.6181)	
employment	0.9165		-0.5377		2.8012	*	2.18	0.114	0.7176	
	(1.2789)		(1.8729)		(1.5367)				(1.1469)	
energy	0.4343		-3.2167		-3.5061		2.28	0.104	-2.6213	
	(2.9489)		(2.6103)		(2.6197)				(1.9287)	
rescue	0.4225		1.0817		2.2445	**	0.44	0.645	1.6281	*
	(1.9715)		(1.1066)		(0.9392)				(0.8929)	
restructuring	3.6040		1.4462		3.8205	*	6.24	0.002	3.6212	***
	(2.1889)		(1.6783)		(2.0473)				(1.1057)	
environmental	3.4405	***	2.5818	**	2.3774	*	0.69	0.501	2.8830	***
	(1.0833)		(1.1067)		(1.2675)				(0.8318)	
general interest	4.4446		2.2533		5.9046	*	0.74	0.479	5.1772	**
	(3.7120)		(3.4658)		(3.0778)				(2.0609)	
remedy	7.7074	**	7.7566	***	9.2070	***	0.24	0.788	8.0356	***
	(3.3715)		(1.6070)		(1.3763)				(1.2197)	

Table 15: Determinants of the Budget of State Aid Cases for the Fourth Specification (given for a single objective and to a single industry) (Continued)

	Quantile Regression			Test of Equality for Coefficients		OLS
ln_budget	q25	q50	q75	F-Statistic	p-value	
Industries						
agriculture	-0.8036	-1.1174	-0.9810	0.09	0.911	-1.0886
	(0.9533)	(0.7797)	(0.6343)			(0.7929)
mining	0.0807	-0.0607	-0.5443	0.32	0.725	-0.1257
	(0.4717)	(0.3440)	(0.7612)			(0.3319)
electricity & gas	0.8024	-0.1460	0.3653	0.56	0.572	0.2148
	(0.8856)	(0.9147)	(1.3535)			(0.5814)
water & waste	-0.0007	-0.2335	-0.6103	0.95	0.389	-0.3807
	(0.2074)	(0.2123)	(0.4111)			(0.3210)
construction	-0.8215	-0.6027	-1.0298	0.11	0.896	-0.9214
	(1.8832)	(1.1243)	(0.9776)			(1.0059)
motor	0.0731	-0.0683	-0.5426	0.28	0.758	0.0309
	(0.1961)	(0.3159)	(0.3341)			(0.4679)
transporting & storage	-1.1739 *	-1.9809 **	-0.8719	1.76	0.174	-1.3728 **
	(0.6677)	(0.8015)	(0.7269)			(0.5451)
accommodation	1.0621	0.6543	1.7095	1.03	0.359	1.0629 *
	(0.8022)	(0.6888)	(1.2373)			(0.5649)
information & communication	-0.8588	-0.7078	-0.5635	0.03	0.974	-1.1787 *
	(1.2462)	(0.5650)	(0.5350)			(0.6205)
financial & insurance	0.1255	-0.0158	1.3711	0.35	0.705	0.5817
	(2.9484)	(1.6706)	(1.3776)			(0.9138)
real estate	3.2492 *	2.4036 *	1.2072	1.09	0.336	2.5359 **
	(1.9672)	(1.4338)	(1.0180)			(1.0810)
professional & scientific	-0.3106	-2.0398 **	-2.9491 ***	2.41	0.092	-1.5626 **
	(1.1299)	(0.8875)	(0.8908)			(0.6401)
public administration & defense	0.2599	-2.4197	-4.0956 *	2.79	0.063	-1.9548 **
	(1.1809)	(1.5170)	(2.1024)			(0.8575)
arts	-0.3037	-0.5365 **	-0.9132 **	0.65	0.522	-0.6836 **
	(0.2453)	(0.2632)	(0.4192)			(0.3210)
other services	-0.9500	-1.1713	-1.5389 *	0.31	0.735	-1.2763 *
	(0.9239)	(0.7314)	(0.8774)			(0.6640)
Year Dummies						
dum1998	0.9128	0.7815	-1.5450	1.63	0.198	0.1016
	(2.8422)	(1.8241)	(1.9052)			(0.7608)
dum1999	2.3956	1.9861 **	0.2832	1.03	0.359	1.2723 **
	(1.5731)	(0.9133)	(0.8286)			(0.5852)
dum2000	-0.5829	0.2279	-0.5534	1.11	0.331	0.2310
	(1.5861)	(1.1063)	(1.0902)			(0.8524)
dum2001	0.6716	1.1055 *	0.2849	0.31	0.733	0.9189
	(0.9419)	(0.6442)	(0.7476)			(0.5992)
dum2002	0.9133	1.0254 *	0.5795	0.19	0.829	1.1685 ***
	(0.6900)	(0.5491)	(0.5411)			(0.4437)
dum2003	0.4003	0.4319	-0.1653	0.46	0.635	0.4745
	(0.6764)	(0.6075)	(0.4928)			(0.4781)
dum2004	-0.1644	-0.0715	-0.9494	0.83	0.438	-0.3152
	(0.7758)	(0.6856)	(0.8493)			(0.5207)
dum2006	0.0294	0.0400	-0.2118	0.08	0.923	0.3328
	(0.7312)	(0.5265)	(0.6393)			(0.5270)
dum2007	-0.1902	0.2717	-0.4250	1.15	0.318	-0.1016
	(0.6998)	(0.6758)	(0.6858)			(0.5904)
dum2008	-0.0337	0.2049	-0.8539	1.61	0.202	-0.2633
	(0.8198)	(0.5809)	(0.5807)			(0.7369)
dum2009	1.9170	1.0844	-0.3449	1.17	0.312	1.1361
	(1.2708)	(0.7879)	(1.0192)			(0.8797)

Table 15: Determinants of the Budget of State Aid Cases for the Fourth Specification (given for a single objective and to a single industry) (Continued)

	Quantile Regression						Test of Equality for Coefficients		OLS	
ln_budget	q25		q50		q75		F-Statistic	p-value		
Countries										
at	2.3046		1.2358		0.3083		0.37	0.691	0.5139	
	(2.5638)		(1.1924)		(1.1624)				(0.9451)	
be	3.7859	***	1.3137		-0.0641		4.34	0.014	1.6273	**
	(1.3666)		(0.8747)		(0.9241)				(0.7330)	
cy	-1.1475		-0.8356		-1.1482		0.05	0.953	-1.0344	
	(1.4829)		(1.5797)		(1.2807)				(1.1218)	
cz	4.7064	***	2.6071	**	0.4505		2.42	0.090	2.5563	***
	(1.7798)		(1.2116)		(1.0520)				(0.8407)	
dk	2.4715	*	1.0078		-0.3205		1.41	0.246	0.7350	
	(1.4579)		(0.9486)		(0.8540)				(0.6224)	
ee	1.2855		1.4111		0.9027		0.03	0.973	1.4445	
	(2.5639)		(2.4521)		(2.1165)				(1.4757)	
fi	2.0578		1.1837		-0.4898		0.98	0.375	0.3640	
	(1.4510)		(1.3124)		(1.5241)				(0.8407)	
fr	3.7455	***	1.9321	*	0.7163		2.64	0.073	2.2131	***
	(1.3349)		(1.0418)		(0.9355)				(0.6252)	
de	2.3285	**	1.2516		0.7887		0.49	0.611	0.8703	
	(1.1160)		(0.9179)		(0.8542)				(0.7186)	
gr	4.2826	**	2.7443	*	2.0457		0.64	0.529	2.8557	***
	(1.7067)		(1.5595)		(1.6825)				(0.9976)	
hu	0.7775		-0.4303		-2.4277	*	1.66	0.192	-0.7695	
	(1.5925)		(1.2890)		(1.3158)				(0.7465)	
ie	2.0189		1.2576		-0.9305		1.27	0.282	0.3393	
	(1.4397)		(1.3081)		(1.4903)				(1.2095)	
it	2.3557	*	1.5123		1.2436		0.42	0.657	1.6328	**
	(1.2354)		(1.0347)		(0.9311)				(0.7770)	
lv	1.7544		-1.5020	*	-3.6329	***	4.79	0.009	-1.5021	
	(1.5786)		(0.8851)		(0.8954)				(0.9867)	
lt	4.1309		1.3460		1.6947		1.17	0.313	2.9118	**
	(2.5641)		(1.8935)		(1.6323)				(1.2955)	
lux	-2.1139		-0.4348		-0.7945		1.49	0.226	-1.4490	*
	(1.6151)		(1.1031)		(1.1272)				(0.7962)	
pl	1.8521		0.5531		-1.6095		4.21	0.016	0.1285	
	(1.3949)		(0.9063)		(1.1021)				(0.9011)	
pt	3.9660	***	2.3836	***	0.0468		4.92	0.008	1.5545	*
	(1.0404)		(0.8517)		(0.7303)				(0.8786)	
ro	5.1311	**	2.7708	*	1.3094		2.02	0.135	2.9032	***
	(2.5782)		(1.6506)		(1.0880)				(1.0477)	
sk	0.2839		0.4450		-0.6130		0.26	0.772	-1.0379	
	(1.9081)		(1.9314)		(2.6718)				(1.5360)	
si	3.1992	**	0.9174		-1.9169		3.10	0.046	0.7168	
	(1.4887)		(0.8601)		(1.2458)				(0.7487)	
es	2.2295		0.9634		-0.2589		1.97	0.140	0.7564	
	(1.4547)		(1.1716)		(0.9107)				(0.7904)	
se	2.2373		0.5946		0.4742		0.57	0.564	0.3330	
	(1.4263)		(1.0521)		(1.0002)				(1.3334)	
uk	2.1496	*	1.4422		0.2233		0.87	0.421	0.9066	
	(1.1545)		(1.0708)		(0.8914)				(0.7428)	
Statistics										
Observations	438		438		438				438	
Pseudo R-Squared	0.50		0.55		0.62					
R-Squared									0.78	

Table 16: Determinants of the Daily Budget of State Aid Cases for the Fifth Specification

	Quantile Regression			Test of Equality for Coefficients		OLS
daily_budget_m	q25	q50	q75	F-Statistic	p-value	
constant	0.0019	0.0067	0.0646	0.05	0.955	63.0875
	(0.0026)	(0.0162)	(3.4909)			(45.3412)
multiple_objectives	0.0048	0.0124 *	0.0098	0.49	0.613	10.6750
	(0.0039)	(0.0066)	(0.0201)			(38.5244)
multiple_industries	0.0002	0.0053	0.0159	0.32	0.728	-24.8566
	(0.0073)	(0.0066)	(0.0189)			(23.8813)
gdp_avg	-0.0008	-0.0026	-0.0124	0.40	0.673	-12.4145
	(0.0011)	(0.0052)	(0.0181)			(11.4436)
Countries						
at	0.0019	0.0233	0.0130	1.55	0.214	-60.6757
	(0.0029)	(0.0187)	(3.6282)			(50.5954)
be	-0.0010	-0.0168	-0.0533	0.65	0.524	-58.1192
	(0.0012)	(0.0113)	(3.4821)			(49.4079)
cy	0.0024	0.0025	-0.0012	0.00	1.000	-59.7534
	(0.0040)	(2.9921)	(3.4550)			(49.7187)
cz	0.0053	0.0177	0.0259	0.05	0.955	-11.5086
	(0.0152)	(0.0301)	(3.4510)			(65.3482)
dk	-0.0003	0.0040	-0.0167	0.02	0.976	-39.5413
	(0.6210)	(0.0143)	(173.3429)			(59.1140)
ee	0.0047	0.0189	0.0596	0.15	0.857	-1.5910
	(0.0072)	(0.0375)	(3.4305)			(59.5206)
fi	0.0030	0.0028	-0.0396	0.00	1.000	-85.6364
	(4.8788)	(48.8383)	(103.8482)			(62.7229)
fr	0.0111 *	0.0247 *	0.3364	0.13	0.879	-6.9315
	(0.0059)	(0.0131)	(3.5826)			(53.4777)
de	-0.0001	0.0063	-0.0072	0.14	0.867	-52.9457
	(0.0024)	(0.0105)	(3.4850)			(47.2948)
gr	0.0062	0.0864	0.0956	0.00	1.000	-39.7051
	(0.1977)	(32.9683)	(67.3353)			(48.0227)
hu	5.0223	-0.0136	37.7748	0.21	0.811	-220.000 **
	(11.4658)	(25.1880)	(40.5146)			(95.1683)
ie	0.0227 **	0.0167	0.0157	0.00	1.000	-88.2426 *
	(0.0111)	(0.0228)	(3.4664)			(50.6723)
it	-0.0004	0.0008	-0.0362	0.00	0.996	-63.2389
	(0.0018)	(0.0116)	(3.4844)			(45.1269)
lv	11.4144 **	-2.8162	6.7264	0.39	0.678	-370.000 *
	(5.0241)	(15.5101)	(135.2182)			(188.9051)
lt	0.0071	0.0155	0.0428	0.06	0.940	16.8483
	(0.0052)	(0.0318)	(3.4370)			(74.7820)
lux	0.0023	-0.0026	734.1108 *	2.94	0.054	339.2450 ***
	(386.1842)	(429.4428)	(396.2907)			(58.5676)
mt	0.0043	-0.0184 *	-0.2769	1.08	0.339	-97.5646
	(0.0034)	(0.0100)	(3.4883)			(73.6220)
pl	0.0015	0.0066	-0.0003	0.06	0.945	-36.8607
	(0.0027)	(0.0186)	(3.4698)			(57.2236)
pt	0.0041	0.0241	2.0469	0.05	0.954	-60.7611
	(0.0350)	(0.0638)	(10.4740)			(44.9415)
ro	0.0966	0.0894	0.1888	0.00	0.998	-21.6650
	(0.1502)	(0.1860)	(3.5122)			(61.7297)
sk	0.0106	-0.0060	-0.0009	0.00	1.000	-150.000 **
	(2.1116)	(16.9806)	(63.2135)			(55.0523)
si	59.9467 *	44.8470 **	61.8057	0.21	0.812	-140.000 *
	(31.4261)	(19.2451)	(72.8015)			(71.3753)
es	0.0012	0.0034	0.0073	0.01	0.987	-38.1732
	(0.0015)	(0.0076)	(3.4707)			(44.8966)
se	0.0114	0.0467	0.0278	0.63	0.535	-150.000 **
	(0.0407)	(0.1669)	(3.5121)			(61.5673)
uk	0.0005	0.0011	-0.0220	0.00	0.999	31.4253
	(0.0007)	(0.0070)	(3.4732)			(43.9155)

Table 16: Determinants of the Daily Budget of State Aid Cases for the Fifth Specification (Continued)

	Quantile Regression			Test of Equality for Coefficients		OLS	
daily_budget_m	q25	q50	q75	F-Statistic	p-value		
Year Dummies							
dum1998	0.0180 ***	0.0165 *	0.0283	0.11	0.895	21.3678	
	(0.0060)	(0.0086)	(0.0374)			(22.9721)	
dum1999	0.0315	0.0497	0.0739	0.64	0.527	9.0670	
	(0.0331)	(0.0357)	(0.0507)			(37.9623)	
dum2000	0.0020	0.0043	0.0355	0.84	0.431	9.0314	
	(0.0030)	(0.0078)	(0.0352)			(30.2054)	
dum2001	0.0035	0.0048	-0.0086	0.31	0.733	-3.9145	
	(0.0039)	(0.0066)	(0.0164)			(16.0634)	
dum2002	0.0005	0.0037	0.0184	2.05	0.129	-14.9734	
	(0.0018)	(0.0044)	(0.0169)			(10.6385)	
dum2003	-0.0003	0.0001	-0.0069	0.40	0.673	-7.8914	
	(0.0016)	(0.0042)	(0.0072)			(9.1656)	
dum2004	-0.0001	0.0005	0.0011	0.01	0.993	2.5334	
	(0.0008)	(0.0039)	(0.0117)			(9.9389)	
dum2006	0.0013	0.0043	0.0469	1.74	0.177	4.6365	
	(0.0015)	(0.0046)	(0.0523)			(20.1345)	
dum2007	0.0004	0.0050	0.0012	0.49	0.611	6.4762	
	(0.0017)	(0.0053)	(0.0242)			(12.8280)	
dum2008	0.0004	0.0132	0.2297	1.74	0.176	40.6961	
	(0.0017)	(0.0086)	(0.2263)			(28.2331)	
dum2009	0.9592	21.8159	209.2050	2.21	0.111	253.0011	**
	(2.8584)	(14.4954)	(127.9637)			(113.1653)	
Statistics							
Observations	550	550	550			550	
Pseudo R-Squared	0.01	0.02	0.12				
R-Squared						0.16	

Table 17: Determinants of the Daily Budget of State Aid Cases for the Sixth Specification (given for a single objective and to a single industry)

	Quantile Regression			Test of Equality for Coefficients		OLS
daily_budget_m	q25	q50	q75	F-Statistic	p-value	
constant	-0.0021	-0.0029	0.0370	0.67	0.514	75.3090
	(0.0067)	(0.0170)	(117.9931)			(60.9718)
gdp_avg	0.0001	0.0016	0.0067	0.49	0.611	-13.5771
	(0.0012)	(0.0026)	(0.0061)			(17.1127)
Objectives						
training	-0.0014	-0.0020	-0.0064	0.18	0.839	-17.8285
	(0.0026)	(0.0042)	(0.0088)			(19.6369)
sectoral	0.1033 **	0.1071 **	0.0978 **	0.55	0.578	-22.9978
	(0.0510)	(0.0514)	(0.0451)			(20.1752)
regional	0.0112 *	0.0341 ***	0.0643 ***	3.36	0.036	20.1307
	(0.0060)	(0.0100)	(0.0204)			(19.2411)
rd_innovation	0.0024	0.0034	0.0139	0.26	0.770	-9.5463
	(0.0050)	(0.0103)	(0.0228)			(23.5679)
employment	-0.0013	0.0005	-0.0106	0.00	1.000	-50.9269
	(1.9561)	(0.0061)	(0.8584)			(34.0082)
energy	-0.0123	-0.2988	-0.3726	1.17	0.310	-240.0000
	(0.1678)	(0.2434)	(0.2438)			(296.6408)
rescue	-0.0088	0.0947	1.4395 *	1.08	0.339	-37.4642
	(0.4338)	(0.4761)	(0.7807)			(43.0360)
restructuring	0.0060	0.0292	0.0855	0.01	0.986	54.6827
	(0.3748)	(0.5045)	(0.7619)			(48.0825)
environmental	0.0085	0.0266	0.0645	0.05	0.950	44.0188
	(0.0116)	(0.1571)	(0.1950)			(35.4635)
general interest	0.0546	0.0538	0.9360 *	3.45	0.033	65.8150
	(11.9689)	(0.4539)	(0.5019)			(70.6964)
remedy	20.7273	96.7577 *	283.8675	1.36	0.257	248.6386 **
	(15.3207)	(55.2293)	(179.8355)			(96.2204)
Industries						
agriculture	-0.0020	-0.0015	-0.0029	0.04	0.964	2.3151
	(0.0029)	(0.0034)	(0.0067)			(28.2907)
mining	-0.0001	-0.0013	-0.0068	0.53	0.587	0.4582
	(0.0025)	(0.0032)	(0.0092)			(19.6841)
electricity & gas	0.0124	0.3209	0.4796 **	1.76	0.173	19.2312
	(0.1795)	(0.2385)	(0.2258)			(44.9508)
water & waste	0.0004	0.0019	0.0040	0.13	0.876	-16.7157
	(0.0013)	(0.0036)	(0.0085)			(18.9462)
construction	-0.0035	-0.0023	-0.0111	0.01	0.987	-3.7529
	(0.0045)	(0.0052)	(0.3593)			(29.7700)
motor	-0.0001	-0.0009	-0.0067	0.62	0.540	10.2352
	(0.0011)	(0.0009)	(0.1465)			(27.8997)
transporting & storage	-0.0021	-0.0013	-0.0047 *	0.32	0.729	-4.9139
	(0.0015)	(0.0026)	(0.0025)			(22.8737)
accommodation	0.0026	0.0036	0.0468	0.01	0.987	42.7570
	(0.0021)	(0.0091)	(0.0371)			(41.4179)
information & communication	-0.0032	-0.0133	-0.0053	0.00	0.999	-48.8622
	(1.2771)	(0.3884)	(0.0727)			(46.8248)
financial & insurance	-0.0001	-0.0009	0.0124	0.00	1.000	-4.4196
	(0.3860)	(0.1175)	(0.3876)			(44.0951)
real estate	0.1341	0.1162 *	0.0625	0.18	0.835	87.5090
	(8.7944)	(0.0647)	(0.0518)			(92.5429)
professional & scientific	-0.0015	-0.0011	0.0086	0.12	0.888	64.3004
	(7.0152)	(18.7867)	(112.3704)			(62.3098)
public administration & defense	-0.0004	-0.0038	-0.0674	1.90	0.151	-67.4875
	(0.0012)	(0.0132)	(118.0078)			(53.8658)
arts	0.0001	0.0016	0.0037	0.18	0.837	-16.7160
	(0.0012)	(0.0033)	(0.0090)			(18.9462)
other services	-0.0030	-0.0009	0.0016	0.22	0.802	18.3710
	(0.0026)	(0.0022)	(0.0042)			(29.6554)

Table 17: Determinants of the Daily Budget of State Aid Cases for the Sixth Specification (given for a single objective and to a single industry) (Continued)

	Quantile Regression					Test of Equality for Coefficients		OLS	
daily_budget_m	q25		q50		q75	F-Statistic	p-value		
Countries									
at	0.0022		0.0176		-0.0430	0.01	0.987	-89.1699	
	(0.0052)		(0.0200)		(118.0057)			(75.4130)	
be	0.0041		0.0034		-0.0418	1.36	0.259	-28.4529	
	(0.0051)		(0.0175)		(117.9997)			(70.6166)	
cy	-0.0195		-0.0086		-0.0973	0.62	0.536	-140.0000	
	(9.8358)		(18.7774)		(158.6170)			(116.4535)	
cz	0.0074		0.0002		-0.0679	* 3.11	0.046	29.2561	
	(0.0047)		(0.0175)		(0.0346)			(132.5640)	
dk	0.0073		0.0052		-0.0290	0.00	1.000	-100.0000	
	(4.1208)		(163.7989)		(190.1900)			(85.3361)	
ee	0.0030		-0.0063		-0.0942	2.42	0.090	7.5027	
	(0.0095)		(0.0393)		(118.0085)			(137.5142)	
fi	-0.0012		-0.0206		-0.0740	0.00	1.000	-200.0000	
	(7.4174)		(82.7560)		(251.1705)			(126.9270)	
fr	0.0116	**	0.0370		0.0737	0.45	0.640	-51.1505	
	(0.0053)		(0.0269)		(118.0476)			(60.3869)	
de	0.0048		0.0069		-0.0313	0.87	0.418	-94.5566	
	(0.0057)		(0.0168)		(117.9977)			(70.5498)	
gr	0.0161		0.0723		-0.0307	1.94	0.145	-56.4086	
	(0.0348)		(11.3413)		(118.0055)			(82.5910)	
hu	-14.7981		-76.3546		-250.0000	0.77	0.463	-450.0000	***
	(13.2456)		(60.0436)		(248.9697)			(150.3196)	
ie	0.0111		-0.0038		-0.0616	0.00	1.000	-250.0000	
	(15.8294)		(50.2398)		(127.6887)			(185.3056)	
it	0.0055		0.0067		-0.0258	0.57	0.564	-68.2746	
	(0.0056)		(0.0173)		(117.9990)			(59.6178)	
lv	-9.2936		-79.1067		-270.0000	1.09	0.336	-560.0000	**
	(15.1371)		(59.8578)		(254.4775)			(263.7539)	
lt	0.0050		-0.0088		-0.0886	1.98	0.140	17.6554	
	(0.0081)		(0.0234)		(118.0272)			(141.8904)	
lux	922.8752	**	846.8189	**	652.4396	** 1.15	0.317	537.0014	***
	(448.0834)		(416.7362)		(320.2553)			(140.6431)	
pl	0.0017		-0.0238		-0.0684	1.57	0.209	-89.4456	
	(0.0085)		(0.0246)		(118.0212)			(109.2815)	
pt	0.0073		0.0073		-0.0308	0.00	1.000	-130.0000	
	(6.2075)		(18.9687)		(118.0016)			(86.1480)	
ro	0.0885	**	0.0630	*	-0.0214	1.92	0.148	-94.4871	
	(0.0439)		(0.0346)		(117.9987)			(62.9485)	
sk	-19.0700		-0.0220		-0.1075	0.21	0.808	-280.0000	
	(19.6997)		(72.3893)		(216.0442)			(185.4211)	
si	41.4723	***	-34.5468		-220.0000	1.39	0.251	-360.0000	***
	(14.8609)		(54.4314)		(243.9282)			(120.2351)	
es	0.0032		0.0014		-0.0451	1.44	0.237	-38.0065	
	(0.0053)		(0.0155)		(118.0110)			(66.4915)	
se	0.0067		0.0079		-0.0338	0.00	1.000	-190.0000	
	(12.3845)		(0.3539)		(117.9725)			(120.6183)	
uk	0.0034		0.0032		-0.0426	2.05	0.130	22.5825	
	(0.0050)		(0.0175)		(118.0043)			(115.9883)	

Table 17: Determinants of the Daily Budget of State Aid Cases for the Sixth Specification (given for a single objective and to a single industry) (Continued)

	Quantile Regression			Test of Equality for Coefficients		OLS
daily_budget_m	q25	q50	q75	F-Statistic	p-value	
Year Dummies						
dum1998	0.0092	-0.0184	-0.0687	0.53	0.590	-1.4932
	(0.0063)	(0.3637)	(0.4949)			(30.4599)
dum1999	0.0203	0.0757 *	0.0374	1.03	0.358	-7.7645
	(0.0390)	(0.0456)	(0.0496)			(55.2698)
dum2000	-0.0057	-0.0048	-0.0247	0.04	0.965	23.6469
	(0.0053)	(0.0252)	(0.0322)			(41.4910)
dum2001	-0.0012	0.0047	0.0049	0.65	0.522	5.2866
	(0.0080)	(0.0070)	(0.0092)			(29.1867)
dum2002	0.0023	0.0026	0.0021	0.01	0.993	-4.2510
	(0.0018)	(0.0028)	(0.0080)			(15.7982)
dum2003	-0.0007	-0.0013	-0.0017	0.03	0.970	0.9426
	(0.0016)	(0.0033)	(0.0052)			(14.3339)
dum2004	0.0001	-0.0019	-0.0016	0.22	0.806	3.1324
	(0.0015)	(0.0036)	(0.0048)			(19.1613)
dum2006	0.0020	-0.0026	0.0016	0.44	0.646	16.3504
	(0.0028)	(0.0036)	(0.0192)			(23.8739)
dum2007	0.0003	0.0020	0.0105	0.30	0.742	14.4876
	(0.0018)	(0.0055)	(0.0097)			(23.5158)
dum2008	0.0002	0.0023	0.0151	0.48	0.622	-25.8880
	(0.0019)	(0.0048)	(0.0136)			(30.8654)
dum2009	0.0563	0.0601	7.2886	0.00	0.997	157.2421 *
	(3.0021)	(14.9575)	(100.6195)			(89.3943)
Statistics						
Observations	438	438	438			438
Pseudo R-Squared	0.10	0.15	0.28			
R-Squared						0.27

Table 18: Ranking of State Aid Objectives and Industries Based on Duration, Total Budget and Daily Budget after Estimations

Duration Ranking		Total Budget Ranking		Daily Budget Ranking	
Rank	**Objectives**	**Rank**	**Objectives**	**Rank**	**Objectives**
1	remedy	1	training	1	energy
2	energy	2	energy	2	training
3	rescue	3	employment	3	sme
4	employment	4	sme	4	employment
5	sectoral	5	rescue	5	rd_innovation
6	training	6	restructuring	6	environmental
7	restructuring	7	rd_innovation	7	restructuring
8	sme	8	regional	8	regional
9	regional	9	general interest	9	general interest
10	environmental	10	environmental	10	rescue
11	rd_innovation	11	sectoral	11	sectoral
12	general interest	12	remedy	12	remedy
Duration Ranking		**Total Budget Ranking**		**Daily Budget Ranking**	
Rank	**Industries**	**Rank**	**Industries**	**Rank**	**Industries**
1	professional & scientific	1	public administration & defense	1	information & communication
2	water & waste	2	professional & scientific	2	public administration & defense
3	arts	3	transporting & storage	3	construction
4	financial & insurance	4	other services	4	agriculture
5	agriculture	5	agriculture	5	mining
6	information & communication	6	information & communication	6	transporting & storage
7	other services	7	construction	7	professional & scientific
8	transporting & storage	8	arts	8	motor
9	electricity & gas	9	water & waste	9	financial & insurance
10	motor	10	electricity & gas	10	other services
11	construction	11	motor	11	manufacturing
12	manufacturing	12	mining	12	arts
13	mining	13	financial & insurance	13	water & waste
14	accommodation	14	manufacturing	14	accommodation
15	real estate	15	accommodation	15	real estate
16	public administration & defense	16	real estate	16	electricity & gas